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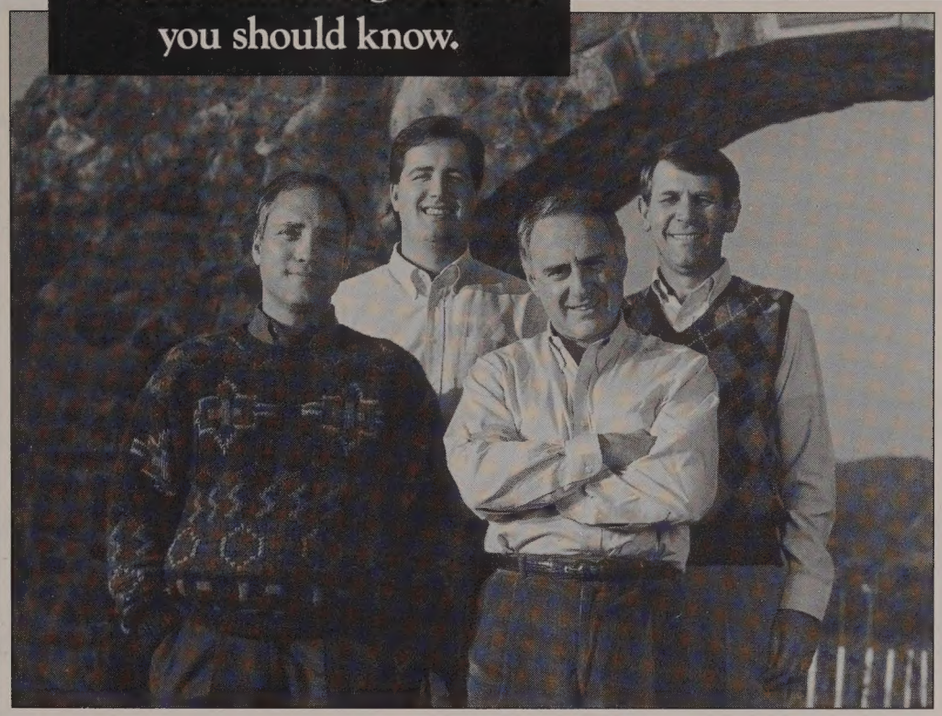

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Sustainable viticulture practice at Fetzer Vineyards, Hopland, CA. Photo by Fred Lyon.

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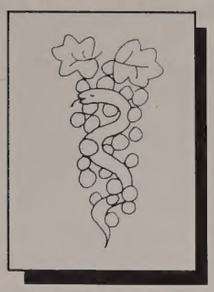

Wells Shoemaker, MD

Wine and the Heart: New information and old hypocrisy

"Alcoholic beverages supply calories but little or no nutrients. Drinking them has no net health benefit, is linked with many health problems, is the cause of many accidents, and can lead to addiction. Their consumption is not recommended."

— Dietary Guidelines for Americans 1990, U.S. Dept. of Agriculture

"It is clear from an overwhelming amount of epidemiologic, clinical, and basic research data that there are benefits as well as dangers associated with the consumption of alcoholic beverages."

— R.C. Ellison MD, editorial in *Epidemiology*, September 1990[1]

The well-intentioned authors of these two statements both live on the Eastern seaboard of the same continent, yet their statements fall worlds apart. Whom should we believe?

The answer hinges largely upon what the authors think their audience will do with the information. Back in 1979, the *Journal of the American Medical Association* published an early study,[3] later to be joined by two dozen others, showing a lower mortality rate for moderate drinkers compared to the extremes of abstention and abuse — the 'U-shaped Curve'.[2]

An editorial accompanying this pioneer report acknowledged and welcomed the information, yet expressed concern that promulgation of the data would encourage latent alcoholics to drink, and that they might not 'stop at two'. Dr. Castelli concluded, "With 17 million alcoholics in this country, we perhaps have a message for which the country is not yet ready."[3]

Dr. Ellison, in his *Epidemiology* editorial a decade later, stated succinctly, "The epidemiologic community has known for many years that moderate alcohol consumption is associated with lower cardiovascular mortality rates but ***has not publicized this fact***, perhaps because of the fear that making a positive statement about drinking would lead to greater abuse of alcohol.

"This reluctance to admit that moderate amounts of alcohol may actually be beneficial to your health may be contributing to a neo-prohibitionist attitude that is becoming increasingly more prevalent throughout the United States," states Dr. Ellison.

The initial concept of the U-shaped curve was paradoxically irksome to doctors because, while supporting a personal custom of moderate drinking by many physicians, it seemed to clash with their daily encounters with patients whose erosive diseases were caused by the same molecule supposedly so helpful in moderation.

To resolve the quandary, physicians need only to recognize the fundamental difference between the consumption of alcohol by healthy adults versus the complex disease of alcoholism. The current state of medical understanding of the metabolic and genetic aspects of alcoholism was summarized in 1990.[16]

No passing on curves

One thing is clear: The solidly and repeatedly documented 'U-shaped' curve, showing 20% to 30% lower deaths from heart disease for moderate drinkers, is an embarrasing pimple on the pure complexion of prohibitionistic do-gooding.

The anti-alcohol forces have attacked the U-shaped curve using several dubious postulates:

1. There is no logical medical basis for the phenomenon.

2. It is a statistical aberration, not a truth, and abstainers are really healthier, after all.

3. Even if alcohol were helpful in skeptically-defined circumstances to certain individuals, the preponderant harm to society renders this preventive value moot.

4. People may be driven to drink excessively because of what they hear, see, or read, so society (read: government) can reduce the consequences of abuse by manipulating the media and the law.

5. Alcoholism is an acquired behavior disorder, not a medical disease.

While all of these notions received press play in 1990, I would like to explore and rebut the first of these allegations, using new information from 1990.

'No physiological basis' — Western medicine requires a plausible, preferably molecular, mechanism before a malady or a phenomenon can be ordained as legitimate. Diabetes became more discrete after the discovery of insulin, hemophila after clotting factors, epilepsy after electric brain wave tracings, PMS after prostaglandins.

An elegant study in 1990 defined cogent reasons on the 'micro' level to explain the 'macro' observation that moderate drinkers, on average, outlive their abstaining, as well as abusing, countrymen. This was simultaneously reinforced by a huge, well-controlled, prospective epidemiologic study published by Boffeta.[2,8]

Historically, the fractionation of cholesterol into high density (HDL) and low density (LDL) components and the discovery of the protective effect of HDL shed new light onto mechanisms of cardiovascular disease. Alcohol proved to increase HDL, offering a simplistic mechanism for the U-shaped curve.

Subsequently, researchers broke down HDL in the laboratory into subcategories (HDL 1, 2, and 3). One researcher churlishly found that alcohol increased the 'wrong one'. "Gotcha," rejoiced the prohibitionists. This molecular reprieve proved short-lived, as the fractionation procedure involved a lab artifact that didn't really reflect what was happening in the live person, which was much more complicated.[5,6,7]

Back to 1990: Seigneur and his coworkers convincingly demonstrated that alcohol indeed stimulates a series of synthesis steps that increase levels of the specifically beneficial HDL.[8] Seigneur further showed that red wine accomplished this feat more efficiently than plain ethanol or white wine.

Siegneur's findings lend refreshing support to a hypothesis, made ten years earlier by St. Leger, that natural elements among grape skin tannins augment the protective effects of alcohol.[9] Jacques Recht's report in the July/Aug'90 **PWV** further explored the molecular effects of tannins.

The Seigneur report also identified a second, hugely important physiological effect of red wine consumption which offers further plausible physiological support for wine's health benefits: Subjects using red wine experienced a decrease in platelet 'stickiness'.

The sequence of events leading to sudden blockage of coronary arteries involves blood clots forming on the roughened interior lining of a diseased blood vessel.

WINE & HEALTH

For patients at risk of heart attack, doctors have long recognized and prescribed agents which interfere with clot formation, most of which are cheaper than Zinfandel but don't taste as good.

Bottom-line: flat-line

Dr. T. Regan, in *JAMA*, offered an extensive 1990 review of alcohol's effects upon the cardiovascular system, including an erudite listing of the many adverse effects of alcohol abuse.

Regan only casually and incompletely reviewed the healthful aspects with the conclusion: "A preventive effect of mild to moderate drinking on coronary artery disease is, at present, equivocal, largely due to the question of appropriate controls."[14]

Every year, 750,000 Americans die of heart attacks, and many spend the last years of their lives sick and miserable. Ironically, any newly invented remedy which could reduce this incidence 20%, prolong lives, and be well tolerated by 90% of the population would be hailed as one of the public health triumphs of the century.

Why is there such obstinate opposition to accepting alcohol's health benefits? Why don't the doctors speak up?

The medical consequences of alcohol abuse by 10% of the population occupy a disproportionate and frustrating amount of the internal medicine doctor's day. The doctor does not spend much time with the healthy, moderate drinker to whom we sell our wine.

The moderate drinker is eventually going to die of something, maybe a couple years after an abstainer wearing the same shoes, and the cardiologist will worry about that when the time comes. Meanwhile, the doctor is tired. ■

Dr. Shoemaker is a practicing pediatrician and winemaker at Salamandre Wine Cellars in Aptos, CA. Preventive medicine occupies a major part of his daily work in both occupations.

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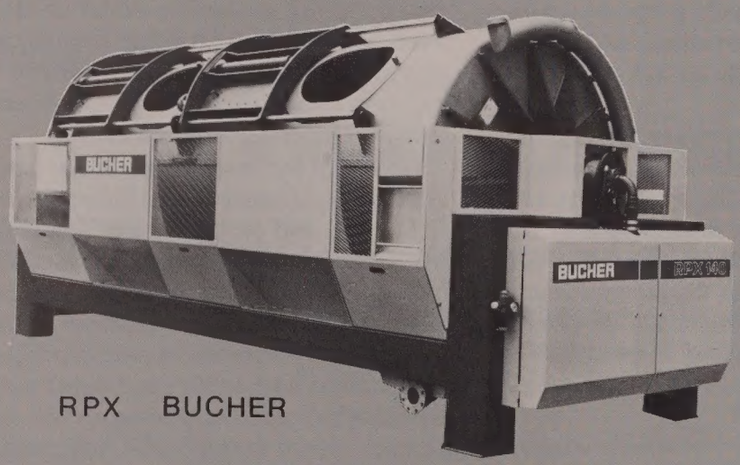

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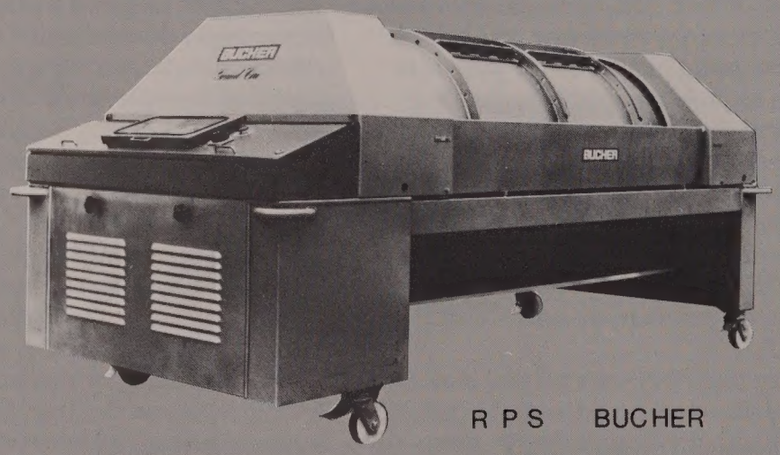

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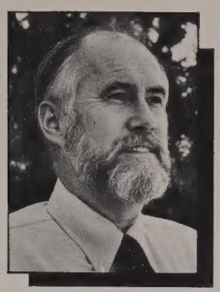
DEVAA organized

The U.C. Davis Enology & Viticulture Alumni Association (DEVAA) has formally elected a board of directors. A reception is being planned for the 1991 annual meeting of the American Society of Viticulture & Enology, to be held in Seattle, WA in June.

Purposes of DEVAA are to re-establish and maintain social ties between alumni and help sponsor events that provide recognition for the UC Davis Vit./Enology dept. and alumni. Membership is open to anyone who has taken courses in the UC Davis Vit./Enology dept., including formal degrees and those who attended for shorter periods. Currently there are no annual dues. To join, write to DEVAA, Dept. of Vit./Enology, UC Davis, Davis, CA 95616. A newsletter will be issued soon to announce upcoming events.



D.R. Storm, Ph.D, P.E.

A viticultural bank; conditional withdrawals

Living, growing horticultural treasures are easy to overlook — I have been gazing unknowingly at a very special vineyard for about six years.

The genetically valuable clonal germplasm repository at the U.C. Davis Wolfskill Ranch research facility, near Winters, CA, would still be just another vineyard to me if my curiosity had not been piqued in July, 1990 by a student researcher making leaf water stress measurements on vines there.

The U.S. Dept. of Agriculture (USDA), in cooperation with U.C. Davis, is responsibile for maintaining 'library copies' of rare grape species, which include many table and wine grapes of Middle Eastern and Russian origin that have nearly disappeared from Planet Earth.

A U.C. Davis germplasm repository spokesperson, Katie Rigert, told me that 2,300 vines, representing 40 separate species and including duplicate plantings of each specimen, are included in the 13-acre collection. Commercially important grape varieties are not included in the repository, as world-wide plantings of these virtually guarantee their continued survival.

While a visit to the facility might interest only hardcore 'vineophiles', a self-guided tour is currently impossible until the numerical labelling system is replaced with common and botanical name tags. There are withdrawals from this vine bank for experimental purposes only.

(A footnote: The USDA maintains clonal germplasm repositories for many fruits, nuts, and cereal grains at universities throughout the U.S. For more information, call Rigert at U.C. Davis: 916/752-6504.)

Water contamination and plumbing materials

Part II

Part I (Jan/Feb'91-**PWV**) described the health hazards associated with chemical leaching from pipe materials and jointing compounds. To dispel the notion that there are no solutions to the heavy metal and organic hydrocarbon contamination problem, research findings by pipe manufacturers and national standards and testing institutes are described below.

Get the lead out

Lead appears to be the most significant health hazard as it is a multi-source contaminant, *i.e.*, paint, fuels, and plumbing materials.

The elimination of lead-tin solder as a pipe jointing material by federal legislation was described in Part I. The U.S. Environmental Protection Agency (EPA), with its continued tightening of drinking water quality standards through implementation of the Safe Drinking Water Act of 1986 (as amended), requires that all states have in place, as of June 19, 1988, legislation to ban the use of any lead or lead products in potable water systems or face the withholding of federal grants for drinking water programs.[1]

This legislation insures that new wineries will have lead-free-soldered copper plumbing, but what about existing wineries?

Water supplies that are soft (*i.e.*, low calcium or magnesium hardness), with lower than neutral pH, have the greatest potential for leaching lead from old soldered joints.[2] The obvious solution to this problem is to flush the system prior to use by directing hoses to the drain for two to three minutes before tanks or crush equipment are washed.[ibid]

(This is also a good way to reduce your personal residential intake of lead, if you suspect that your copper plumbing may be a contributor.)

Although these measures sound contrary to good water conservation practices, especially in the drought-plagued Western U.S. and elsewhere, even a little lead is unacceptable because of the human body's ability to bioaccumulate the compound and its inability to detoxify or alter it.

The EPA has adopted a near zero tolerance limit for lead in blood of 10 micrograms per deciliter. In 1960, the human tolerance level was set at 60 mg/dl.[3]

Volatile organic compound (VOC) leaching in plastic pipe

How serious are the VOC's that may be

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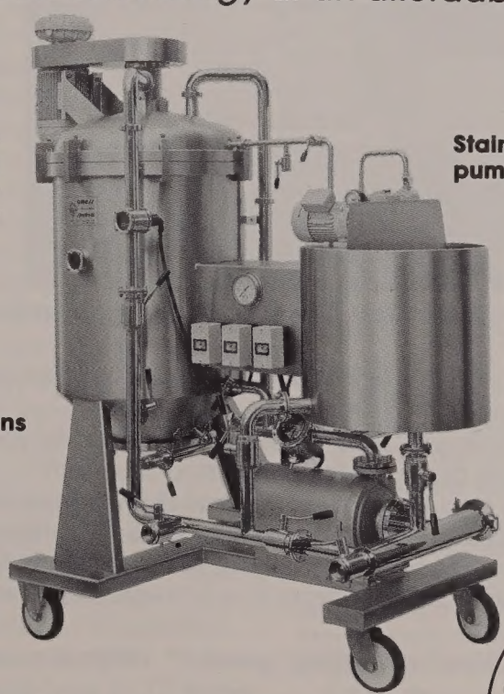

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leached from plastic pipes and jointing solvents? At 1 to 10 mg/L in new piping systems, some cancer risk prevails, but testing shows VOC levels dropping to about 0.1 ppb after flushing and initial use.[2]

As with lead leaching, soft and chemically aggressive (less than neutral pH) water supplies are more likely to leach VOC's during overnight or weekend breaks in the winery's production schedule. Short period flushing would certainly reduce the risk of micro-contamination by these highly carcinogenic compounds (dicloramethane, carbon tetrachloride, tetrachloroethane, trichloroethene and toluene).

All of the material standard/code organizations (ASTM, AWWA, API and NSF) continue to adopt and modify codes as experience, research, and technology evolve. One of the major sources of plastic pipe VOC leaching is the improper use of joint solvents (sometimes called 'multi-use' solvents), which fail to chemically react correctly with the pipe or pipes being used.[2] For example, the NSF requirements for solvent use safety for plumbers date back to 1950, when plastic pipe first emerged as a serious construction material.[ibid]

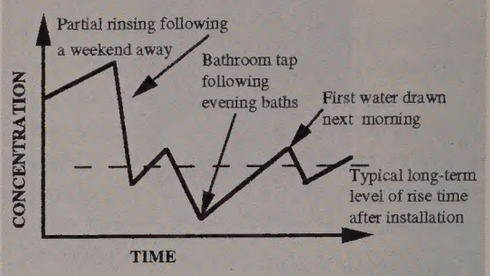
Vineyard workers and other winery personnel who routinely work with plastic pipe jointing compounds should be instructed on the proper, safe use of the solvents.

Plumbing codes prohibit the use of PVC pipe and its variations (*i.e.*, polybutylene and chlorinated polyvinylchloride) in the interior of buildings for hot or cold water service. The California Dept. of Housing & Community Development has studied the expanded use of plastic pipe in residential construction and commissioned Stanford Research Institute (SRI) to investigate the impact of plastic pipe use on water quality.

The toxic leaching component is expressed qualitatively by SRI in Fig. 1. The relative rise and fall in VOC concentrations is shown graphically with the length of dwell time in the pipeline.[4]

Flushing before use is the recipe for avoiding a surge of contaminants arising from long periods of stagnation (non-use) in potable water systems containing plumbing fittings of chrome and its metallurgical cousins. As cited in Part I, this potential source of heavy metal contamination is the least of the plumbing material problems.

Fig. 1
Short-term variations in concentration


Partial rinsing following a weekend away
Bathroom tap following evening baths
First water drawn next morning
Typical long-term level of rise time after installation
CONCENTRATION
TIME

Help is on the way

Third party regulators, *i.e.*, code and standard setters, appear to offer the most hopeful opportunity for eventually reducing to insignificant levels the pipe and pipe jointing material contamination to water supplies.

While the EPA has set safety standards, these offer little guidance as to how they may be practically and economically achieved. Wineries, as first party regulators, will have to be content to flush, flush, flush until revised codes and standards offer the correct technical guidance. ■

David Storm is a consulting civil and sanitary engineer and owner of Winters Winery.

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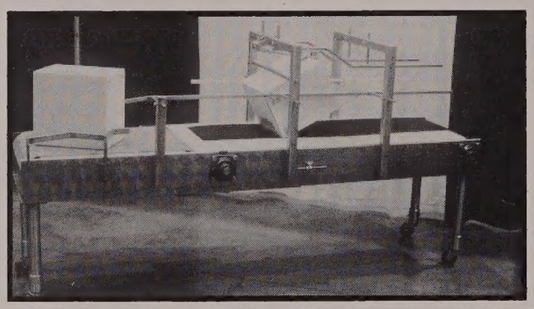

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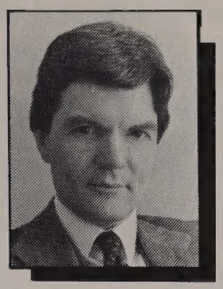

R. Corbin Houchins

Editor's Note: The following article is not intended as legal advice and should not be relied upon in making decisions related to the meaning and effect of federal tax laws. The opinions set forth below are based on information available as of January 3, 1991.

Is a production dispersal strategy worth considering?

The incentive to restructure

If the domestic small producer tax credit and the new excise tax rate continue in effect as originally enacted (an open question in January, 1991), larger wineries will pay a tax differential of commercial significance.

Simply dividing a winery into smaller units will not effect a reduction of the tax for two reasons: First, the statute itself requires treating a commonly 'controlled group' as a single taxpayer.

Secondly, the Bureau of Alcohol, Tobacco, & Firearms (BATF) is authorized to adopt regulations preventing large wineries from benefitting from the domestic producer exemption (pursuant to a new statutory provision sometimes called the 'no benefit' rule). Thus, any strategy adopted must be based on substance rather than form and might be nullified by counter-measures of the regulators.

New Games

Do the restrictions and uncertainties make restructuring strategies academic? Not if relationships among production facilities other than common ownership can be beneficial.

Few members of our industry have regularly played the tax avoidance game, which can be seen as finding a loophole, using it until the government changes the rules, then looking for a new one.

Limitations on gains from tax strategies are obvious: If you are already producing no more than 151,000 gallons and have no expansion plans, nothing is to be gained. The maximum benefit is $90,000.00 per year per facility not deemed part of a controlled group. Nevertheless, so long as the rather technical controlled-group rules affect tax liability, one should give them a look.

A trap in contractual relationships?

The other side of the coin from dividing capacity to reduce taxes is combining for business reasons and inadvertently creating a controlled group.

Existing Dept. of Treasury regulations present little danger that joint marketing or other arrangements short of affiliated ownership will result in loss of domestic small producer credits. However, if BATF starts adopting regulations to close loopholes, caution will be in order.

Under current BATF thinking, insofar as it has been revealed in explanations of the new law, the 'no benefit' rule will come into play if a producer not eligible for a credit is able to market its wine at a lower cost because of having received the benefit from someone else's credit. So long as the present law is with us, agreements among producers that facilitate lower sales prices should be reviewed for possible exposure to denials of tax credit (as well as for anti-trust issues).

Foreign investment (in either direction) also requires review. According to BATF, the production level will be regarded as the combined production of the entire controlled group, wherever its members are located. Pre-existing controlled group statutes and some past corporate income tax rulings by the Internal Revenue Service may give relief for affiliations that involve no stateside activity by the foreign entity, but it is presently unclear whether they will be applied to the wine excise tax. A domestic producer should obtain tax advice before marrying a foreign producer, figuratively or literally.

The current compass

To date, what we have to work includes:

1) The new statutory language, which indirectly incorporates the pre-existing § 1563 of the tax code by reference;

2) The cursory explanation of controlled groups in Industry Circular 90-4;

3) Official statements from BATF that they will attempt to regulate away any arrangement that enables a large winery to market at prices that do not fully reflect the new tax;

4) Treasury Regulation § 1-1563, interpreting § 1563 of the code; and

5) Corporate income tax revenue rulings of dubious application.

I have to apologize for the legalese that follows, but translation into standard English would expand the text beyond acceptable limits. So, looking first at the statutory language:

The Revenue Reconciliation Act of 1990 provides, "Rules similar to rules of section 5051(a)(2)(B) shall apply for the purposes of" the domestic small producer credit. The reference is to the portion of the code dealing with the reduced excise tax rate for certain domestic production of beer, which states that the 2 million barrel limit (corresponding to the 150,000 to 250,000-gallon limit for wine) applies to the entire controlled group and that the limit on removed volume (corresponding to the 100,000-gal cap for wine) is to be apportioned among the controlled group members. Section 5051(a)(2)(B) continues:

". . . For the purposes of the preceding sentence, the term 'controlled group' has the meaning assigned to it by subsection (a) of section 1563, except that for such purposes the phrase "more than 50 percent" shall be substituted for the phrase "at least 80 percent" in each place it appears in such subsection. Under regulations prescribed by the Secretary [of the Treasury], principles similar to the principles of the preceding two sentences shall be applied to a group of brewers under common control where one or more of the brewers is not a corporation."

If the substitution required by the preceding code provision is made, § 1563(a) provides that a controlled group is any one of four types of combinations, the following three of which are relevant to the excise tax:

1) Parent-subsidiary controlled group. — One or more chains of corporations connected through stock ownership with a common parent corporation if:

A) Stock possessing more than 50 percent of the total combined voting power of all classes of stock entitled to vote or more than 50 percent of the total value of shares of all classes of stock of each of the corporations, except the common parent corporation, is owned (within the meaning of subsection (d)(1) by one or more of the other corporations; and

B) The common parent owns (within the meaning of subsection (d)(1) stock possessing more than 50 percent of the total combined voting power of all classes of stock entitled to vote or more than 50

percent of the total value of shares of all classes of stock of at least one of the other corporations, excluding, in computing such voting power or value, stock owned directly by such other corporations.

2) Brother-sister controlled group. — Two or more corporations if five or fewer persons who are individuals, estates, or trusts own (within the meaning of subsection (d)(2) stock possessing —

A) More than 50 percent of the total combined voting power of all classes of stock entitled to vote or more than 50 percent of the total value of shares of all classes of the stock of each corporation, and

B) More than 50 percent of the total combined voting power of all classes of stock entitled to vote or more than 50 percent of the total value of shares of all classes of stock of each corporation, taking into account the stock ownership of each such person only to the extent such stock ownership is identical with respect to each such corporation.

3) Combined group. — Three or more corporations each of which is a member of a group of corporations described in paragraph 1) or 2), and one of which —

A) is a common parent corporation included in a group of corporations described in paragraph (1), and also

B) is included in a group of corporations described in paragraph 2).

The reference above to subsection (d)(1) invokes technical rules for determining stock ownership, including 'constructive ownership'. Although only subsection *a* is expressly incorporated in the new law, incorporating it also incorporates the provisions it incorporates (rather like the little Cracker Jack box held by the sailor on the bigger box) so we should be operating under rules 'similar to' those set forth in subsections **a**, **d** and **e** and any subsections they refer to, as well as to private trust rules of subchapter J of the code, employee trust rules under §§ 401(a) and 501(a), and the laws of divorce and adoption of the states where interested parties are domiciled.

The BATF has not gone into such detail:

Industry Circular 90-4, dated Nov. 26, 1990, states, rather more simply,

Controlled groups. All members of a controlled group are considered as a single taxpayer for purposes of the exemption allowance and tax credits. Basically, a 'Controlled Group' means any group of incorporated or non-incorporated businesses that have common ownership interests (including individuals, partnerships, corporations, and States or political subdivisions of States). A business is considered to be part of a controlled group if more than 50 percent of the business is owned either by, or in common with, another business (or businesses).

Official guidance may also be had from IRS regulations and rulings from before the new excise tax was enacted.

Unfortunately, Regulation §1.1563, interpreting Title 26, § 1563, is too lengthy to summarize. It does provide a number of examples of applying the code to hypothetical corporate structures. Since they involve relationships that normally would not provide a basis for coordination of production and marketing for the affiliated enterprises, they are of limited utility in planning excise tax strategies.

The principal problem with looking at old rulings is that they interpret the general law of controlled groups, and under

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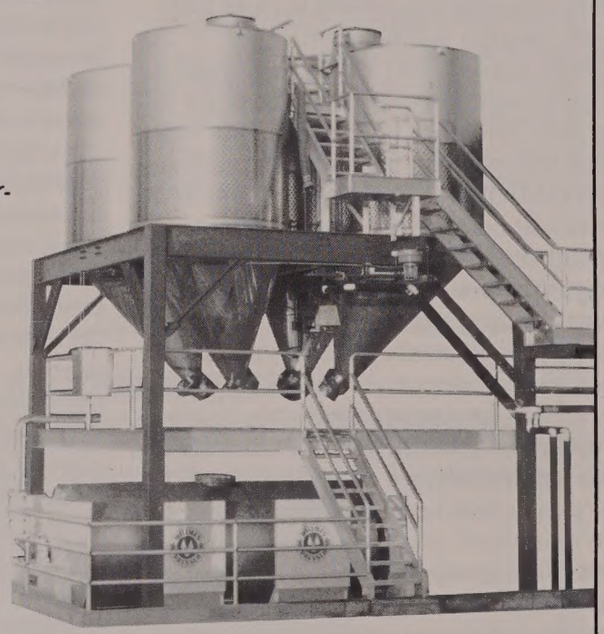

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the Revenue Reconciliation Act of 1990 BATF is required only to enact 'similar', not necessarily identical, rules. Thus, anything that runs afoul of the 'no benefit' principle may result in aggregation of production, whether it would result in a finding of control under traditional rulings or not.

The success of loophole closing depends in part upon how well BATF handles the new level of complexity introduced by grafting corporate income tax attribution rules onto the gallonage tax. (I will refer to statutes and regulations that attribute ownership of interest held by one person to another person in order to aggregate the ownership as 'attribution rules'.) Challenges may be be possible in both substantive and procedural areas.

Forms of affiliation

At the outset, it appears that attempts to coordinate dispersed production directly by means of formal changes in corporate or partnership structure are unlikely to afford long-term advantage. Moreover, in order to prevent application of the 'no benefit' rule, the objective of dispersal should not be marketing at a price less than the price that would be charged without benefit of any small producer credit that might be obtained.

On the other hand, entities that are not under common ownership or control can enter into contractual relationships without being deemed part of a controlled group under any regulation that is similar to those now in existence. The licensing of trademarks for royalties, the provision of marketing services or even simple custom crushing arrangements may, in a proper case, provide the economic advantages of a combined enterprise without formation of a controlled group.

Dispersal of production via requirements or output contracts could offer a significant measure of predictability, but like any arrangement tending toward cooperation among enterprises that are formally separate, careful anti-trust analysis is necessary.

Probably most of the complication in applying the superficially simple standard of 'more than 50% common ownership' will arise from attribution rules. Attribution of stock of spouses, children and parents follows guidelines that are comprehensible but too lengthy to summarize here.

However, current attribution rules do not attribute stock to siblings, so a trusted brother or sister could be an effective dispersal device. It should go without saying that specific legal advice is called for.

Note that dispersal strategies are relevant not only for the production level but for the 100,000-gal cap, which is especially troublesome to bonded wine cellars.

Another device under consideration at press time was creation of bonded wine cellars in conjunction with distributors. There could be some net savings for brands in the 151,000 to 250,000 gallon production range, and some tax deferral and reassignment in any case.

Like any other tax strategy, setting up a cellar for each major supplier would require careful attention to controlled group rules, as well as rulings and regulations we can anticipate under the 'no benefit' rule.

Obviously, consideration of strategies for tax reduction will be highly case-spe-

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cific. Some enterprises may not be divisible without significant income tax consequences. Loss of unified structural control may bring unforeseen consequences. Probably, most non-credit or reduced-credit taxpayers will discard dispersal as a strategy after close examination, but the examination seems to be called for.

Loose ends

In the preceding column I refer to a rule under consideration in December, 1990, to impute production of bulked-in wine to the receiving winery in some cases. That proposed rule has been abandoned.

Unfortunately, at press time, there had been no movement on the strengthening bond issue or on the treatment of bonded wine cellars. In January, the 100,000-gallon cap was still a major problem for wine warehouses in Washington state, where regulatory authorities restrict off-premises tax-paid storage.

Remaining problems with BATF interpretation may have to await technical amendment in Congress. That was under way at press time, but is unlikely to bear fruit before spring.

A further note on the precision of estimated 1991 production: The disincentive to underestimate is interest charged on the underpayment of tax. Interest rates for the first quarter of 1991 are unchanged from last year, at 11% (10% on overpayments), but the new excise tax law is accompanied by a surcharge on some larger underpayments. A 'C corporation' (as distinct from Subchapter S) with underpayments exceeding $100,000 pays two additional percentage points.

Finally, at press time there was no reported litigation challenging the domestic small producer credit. ■

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VARIETAL REVIEW

Taming and complexing the Sauvage

By Eleanor & Ray Heald

Origin of the name 'Sauvignon' is widely accepted as being derived from the French *sauvage*, which means untamed or wild.

Sauvage appears as an organoleptic term in Renoi's ***Dictionaire du Vin*** as a synonym for *gout de terroir.* Thus, *sauvage* evokes the flinty, mineral characteristics associated with the colloquially named *Blanc Fume* from France's Loire Valley.

In the Graves region of Bordeaux, the grape is referred to simply as 'Sauvignon', and displays the gravelly quality typical of the region's white wines.

In the United States, the earliest reference to the grape variety as 'Sauvignon blanc' appeared in the late 19th century.

In California, the recently formed Society of Blancs (producers of Sauvignon and Fume) has created many catchy phrases referring to the varietal. "Satisfy your Taste Blancs," or "There's a Blanc for all Seasonings," and "Blancs have more fun," are only a few.

For a number of years, the wine media has been touting Sauvignon Blanc as an excellent match with a wide range of cuisines, from seafood to spicy ethnic dishes. "Sauvignon Blanc is America's greatest winemaking achievement in the past three years," claims ***Los Angeles Times*** wine columnist Dan Berger.

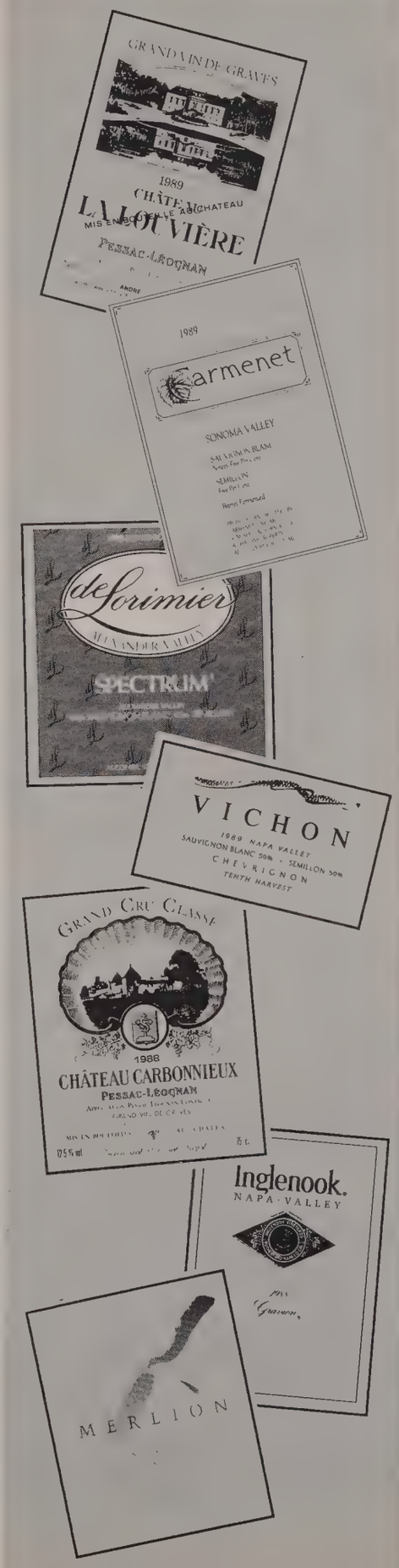
Yet despite all the positives of Sauvignon Blanc, the upscale American wine consumer continues to ask for a more 'complex' Chardonnay. To satisfy this demand or, perhaps, to please themselves, several producers are now blending Sauvignon blanc with Semillon.

While this formula is in the white Bordeaux tradition, the California blends have few aroma or taste similarities to their French counterparts.

To examine the California style of Sauvignon Blanc/Semillon blends, **PWV** conducted an in-depth study involving five California wineries: Carmenet Vineyard, Sonoma; deLorimier Winery, Geyserville; Inglenook-Napa Valley, St. Helena; Merlion Winery, Napa; and Vichon Winery, Oakville.

For the *gout de terroir* or our basic *sauvage* instincts, we gained the cooperation of Chateau Carbonnieux and Chateau La Louviere in the Bordeaux region of France.

A tasting of unblended varietal components demonstrated that aroma and flavor characteristics of Sauvignon blanc, in particular, are related to climatic conditions and resultant vine vigor.



Abundant leaf canopy tends to yield wines with greater *sauvage*. These Sauvignon blancs were distinctly herbal in character. The presence of Semillon in the blend turned down the volume of herbal characteristics and tamed the *sauvage*.

Open canopies with increased sunlight reflection and/or penetration enhanced melon and fig aromatics and flavors. Herbal qualities, if detected, were in the background. With these wines, the Semillon and Muscadelle are complexing agents.

PWV thanks Vichon Winery for hosting the tasting and the following winemakers for serving on the tasting panel: Don Frazer, deLorimier Winery; Steve Reeder, Konocti Winery; Bill Arbios; and Michael Weis, Vichon Winery.

Carmenet Winery

95% Sauvignon blanc
and 5% Semillon (1989)

Style: Production of a complex and balanced wine in aroma, bouquet, flavor, and texture is the expressed stylistic goal at Carmenet. Barrel fermentation in both new and older oak, *sur lies* ageing, and varietal blending are the chosen techniques.

"Distinctive Semillon floral aromas and fine texture add depth, breadth, and balance to the fruitier, herbal Sauvignon blanc," winemaker Jeff Baker contends.

Vineyards: Both varietals, spaced 8×10 on AXR-1 and St. George rootstock, come from ten-year-old vines in the Dunbar and Oswald Vineyards, Glen Ellen, CA. At Dunbar, the vines are trained on a modified lyre system. A modified GDC is used at Oswald.

All vines are spur-pruned in January or February, suckered in June, and leaf-pulled in June or July. The drip-irrigated vineyard sites are considered Davis Region II. Bud break occurs in March, bloom in late April to early May. Harvest, with a yield of four to six tons/acre, occurs in September.

The 1989 rainy harvest window was 21.0° Brix, 0.65 TA, and 3.2 pH. "In more typical years, with 23° Brix, 3.25 pH, and

VARIETAL REVIEW

0.75 TA, ripe, fruity flavors, intact clusters, and sound berries are achieved," Baker reports.

Winemaking: Hand-picked grapes are crushed lightly with berries slightly broken to allow juice flow. Prior to moving pressed juice to barrel, it is inoculated with ½ to ¾-lb/1,000 gal active dry Prise de Mousse yeast.

Average fermentation temperature is 65°F. When fermentation completes, the wine is acidulated to 7.0 / 7.5 g/L. A 40 ppm SO_2 addition is made after malolactic fermentation completes.

The wine is aged in 225L, new to seven-year-old French oak barrels for approximately nine months. In barrel, SO_2 levels are maintained at 25 ppm free and under 50 ppm total.

Blending and bentonite fining in tank are done prior to bottling in May following harvest, at which time the wine is filtered. The wine is bottle-aged six months to one year before release.

Château Carbonnieux

60% Sauvignon,
35% Semillon, 5% Muscadelle

Style: The goal at Chateau Carbonnieux is to produce a complex, dry white wine in what the Bordelais refer to as the 'new' style, which is achieved by light pressing, 100% barrel fermentation, and a short time in barrel. "The new style wines have much more flavor," comments winemaker Andre Vaset.

Vineyards: Continuously planted with vines since the early 13th century, the vineyards of Chateau Carbonnieux are among the oldest and largest in the Graves region. They are located in the southern Bordeaux region between Le Bouscaut and Léognan, where the soils are deep gravel on clay subsoil.

On a slightly northwest-facing slope, 35 hectares (87.5 acres) of, on average, 30-year-old Sauvignon, Semillon, and Muscadelle vines are spaced 1×1.4 metres, with 7,100 vines per hectare (ha). They are pruned by the Guyot Simple on the classic Bordeaux four-wire trellis. Annually, 1/50 of the vines are replanted.

Bud break occurs in mid-April, bloom in mid-May, veraison approximately August 5, and harvest in mid-September, with crop levels averaging 45 hL/ha.

Vines are hedged in the traditional Bordeaux manner. Leaves are pulled a few days prior to picking only as an aid to pickers.

Winemaking: All three grape varieties are processed separately. Thirty percent of the juice receives some skin contact, the remaining 70% is pressed directly with a pneumatic press.

After settling, active dry EG8 and VL1 yeast is added at 10g/hL to begin the barrel fermentation at 20°C (68°F) in 100% new, 225L Allier oak. When the three- to four-week fermentation completes, SO_2 levels are maintained at 30 ppm free during the 10-month *sur lie* barrel-ageing.

Blending occurs in July following harvest. Bentonite fining is done prior to bottling in September. At bottling, SO_2 levels are 30 ppm free and 100 ppm total.

Château La Louviere

80% Sauvignon, 20% Semillon

Style: A harmonious blend of oak and fruit is the goal at Chateau La Louviere. "The wine has a fruit salad character on the nose with peach, apricot, and vanilla," stresses winemaker Jacques Lurton.

"With nearly 13% alcohol, the wine is perceived as rich in the mouth with a lengthy fruit component and smooth wood impression." Lurton describes Sauvignon as aromatic with more acid. "Semillon," he says, "is not very aromatic, but very fat and complementary to oak. The blend of both gives a very good balance. Sauvignon must be the majority grape to preserve our style."

Vineyards: La Louviere, located in the Graves commune of Léognan, is bounded on one side by Chateau Haut-Bailly and on the other by Chateau Carbonnieux. Fifty-five ha (137.5 acres) are planted with vines. The white parcels are 85% Sauvignon and 15% Semillon.

Vines, with an average age of 25 years, are planted 0.90×1.40 metres (8,000 vines/ha), on deep (5 to 10 metres) gravelly soils with a varied topsoil of gravel, silicate, and light chalk.

The classic Bordeaux vertical, four-wire trellis is used. Pruning is done in January according to the Guyot Simple or Double method, with two canes and six

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buds/cane. Crop levels average 50hL/ha.

Winemaking: After whole-cluster pressing, the juice is cold settled to very clean juice and inoculated with Lalvin 1116 active dry yeast, at the rate of five million cells/mL.

Barrel fermentation in new, 225L center of France barrels averages 12°C (54°F). When necessary, diammonium phosphate and thiamine are added as yeast nutrients. The goal is the longest fermentation possible.

The *sur lie* barrel regimen lasts eight months, with SO_2 levels maintained at 20 ppm free and 90 ppm total.

Prior to bottling in June, and ten days after a light bentonite fining, a coarse D.E. filtration is done. Tartrates are precipitated out and a second D.E. filtration follows.

At bottling, SO_2 levels measure 30 ppm free and approximately 100 ppm total. The wine is bottle aged six months before release.

deLorimier Winery

1989 SPECTRUM, a proprietary blend, is 58% Sauvignon blanc and 42% Semillon. (Percentages vary with the vintage.)

Style: "Our goal is a wine of complexity and balance that shows the full range of fruit aromas exhibited by Sauvignon blanc and Semillon," winemaker Don Frazer reports.

"The wine should be dominated by fruit aromas and flavors, have a subtle hint of French oak, a slightly lean mouthfeel, a crisp refreshing finish, and lingering aftertaste."

Frazer believes Semillon enhances the overall complexity with its particular aromas and flavors. "Beyond that," he maintains, "it adds a richness and roundness, especially to the finish, that complements and rounds out the Sauvignon blanc.

"Alone, Sauvignon blanc can be very hard and steely in the mouth unless it's allowed to get very ripe. Blending with Semillon allows deLorimier to pick Sauvignon blanc earlier, at lower sugar levels, yielding a wine with better overall balance and lower alcohol."

Vineyards: deLorimier's eight-year-old estate vineyards, with a five to seven ton/acre yield, are on bottom land, Yolo gravelly-loam soil in the Alexander Valley.

The Preston selection clone on AXR-1 rootstock is trained on single wires at 48 inches and 54 inches above ground. There is one 24-inch wide crossarm 66 inches above ground. There are several experimental rows of a six-inch wide 10-ft high vertical trellis and Geneva Double Curtain.

Vines are pruned to four or five canes with 10 to 12 buds/cane and six to eight spurs. Suckering is done in late May. Vines are hedged two to four times during the growing season. Leaves are pulled in the fruit zone on both sides of the row starting shortly after set, with shoot positioning as needed.

In this high Region II/low Region III vineyard, bud break occurs in the last week of March or first week of April. Bloom is mid-May. Veraison is the last week of July and first week of August. Harvest is the middle of September. Drip irrigation is used only in the pre-bloom period to fill the soil after a dry winter.

Vines are sulfur-dusted starting at 12-inch shoot growth followed by two additional applications 14 days apart. Two to three Bayleton or Rubigan applications

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VARIETAL REVIEW

are also made.

Harvest parameters for Sauvignon blanc are 22° to 23° Brix, 0.65 to 0.75 TA, and a pH of 3.4 to 3.5. The Semillon window is 21° to 22° Brix, 0.55 to 0.65 TA and a pH of 3.45 to 3.55.

Winemaking: The grapes are hand-picked and crushed directly to the press. The juice is acidulated to taste with a target pH of 3.3 to 3.4.

After 48 to 72 hours of settling, the juice is racked off the lees to a fermenter. Bentonite at the rate of two to four-lbs/1,000 gal is added.

Prise de Mousse active-dry yeast is used at 1 to 2-lb/1,000 gal. Diammonium phosphate, Yeastex 61, and/or yeast extract is used as yeast nutrient.

One-half of the Sauvignon blanc is moved to 60-gal, various age, Center of France oak barrels 24 to 48 hours after inoculation. The balance of the Sauvignon blanc and all the Semillon is tank-fermented starting at 50°F, gradually warming to 60°F.

For the tank-fermented portion, SO_2 is added at the first post-fermentation racking to achieve a molecular SO_2 of 0.5 ppm. This typically takes a 40 to 50 ppm addition to reach the necessary free SO_2 level of 16 to 20 ppm at 3.3 pH.

SO_2 is added gradually to the barrel-fermented fraction starting in December until a molecular SO_2 of 0.5 ppm is reached. This wine is left *sur lie* in barrels until January and is stirred every 3 to 4 weeks.

In January, the barrel-fermented fraction is racked to tanks. The tank-fermented portion is heat and cold-stabilized and racked once before going into barrels. The barrel-fermented fraction is usually heat and cold-stable on removal.

Blending of the varietals is done in April or May, just prior to bottling. Additional bentonite is used, if needed, for heat stability. If they prove effective in lab trials, isinglass or gelatin is used for clarity. The blended and stabilized wine is polish and sterile pad filtered.

At bottling, SO_2 levels are typically 25 ppm free and 80 ppm total. The TA is 0.65 with a pH of 3.30 to 3.35. Bottled wine remains at the winery about one year before release.

Inglenook-Napa Valley

GRAVION is a proprietary 50/50 blend of Sauvignon blanc and Semillon.

Style: "We're trying to produce a wine that is full-bodied, lightly oaked, with melon-fig fruity strands, and a lingering finish," winemaker Judy Matulich-Weitz reports. "Most importantly, all elements of the wine need to be in balance."

Matulich-Weitz believes Semillon adds a richness to Sauvignon blanc after about six months of bottle ageing.

"Semillon tones down some of the aggressive varietal character of Sauvignon blanc and showcases the pleasant straw-melon qualities. Since Semillon tends to have lower acid at picking, it benefits from blending with earlier-picked, higher acid Sauvignon blanc grapes."

Vineyards: Both Sauvignon blanc (planted 7×11) and Semillon (planted 8×12 and 6×10) come from Region II vineyards in Yountville. Sauvignon blanc vines are 13-years-old; Semillon are three-year-old and 12-year-old plantings. All are on AXR-1 rootstock in Yolo loam soil.

All the Sauvignon blanc and the older portion of the Semillon are on a T-trellis. Newer Semillon plantings are trained on a quadrilateral cordon. The T-trellis Sauvignon blanc and Semillon cordons are

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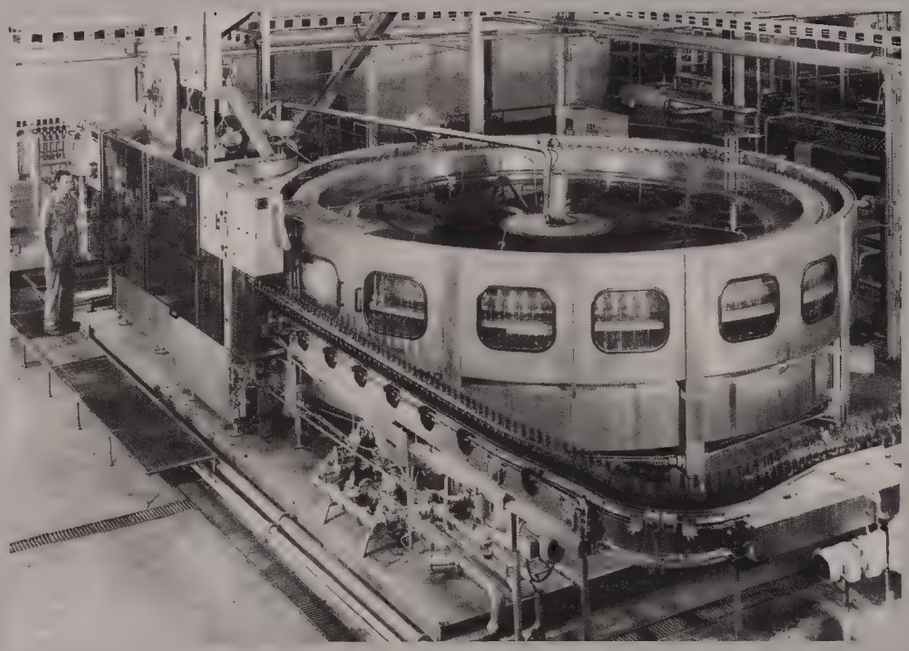

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pruned with one kicker cane and six two-bud spurs. The quad-cordon Semillon is pruned to five two-bud spurs/cordon.

Suckering is done in mid-May and leaves are pulled at the end of June. At picking, the Sauvignon blanc yields five tons/acre and the Semillon six tons/acre.

"The Semillon tends to overcrop every year," says Matulich-Weitz. "With Sauvignon blanc, we manage to balance vegetation to fruit with the kicker cane."

Bud break in the Yountville vineyard occurs mid-March. Bloom is about mid to late May, veraison mid to late July, and harvest in mid-September.

A sprinkler irrigation system is used for frost protection only.

The typical spray program begins early (at 2-inch shoot growth) with an application of wettable sulfur. Vines are sulfur-dusted thereafter every 7 to 10 days until July 5.

Both Sauvignon blanc and Semillon are picked at 20° to 22° Brix. The TA for Sauvignon blanc is 0.65 to 0.75 while Semillon is 0.55 to 0.70. "We use the numbers as rough guides," Matulich-Weitz maintains. "Sometimes the numbers won't be there, but if the grapes taste ripe, we'll bring them in."

Winemaking: Hand-picked grapes are destemmed, but are not crushed until pressed. After settling for 18 to 24 hours, the juice is racked and inoculated with 2-lb/1,000 gal active-dry Pasteur Champagne yeast and transferred at 20° Brix to a mix of twice-used 60-gal Limousin and Troncais barrels.

The Semillon juice is acidulated by taste as needed. Sauvignon blanc has never required an acid addition.

Average fermentation temperature is 50°F. After fermentation completes, SO_2 levels are adjusted to 35 ppm free and maintained at 20 ppm free throughout the six to eight months of barrel ageing. Blending of approximately 50% Sauvignon blanc and 50% Semillon follows.

The wine is bentonited after blending and lowered to 27°F for tartrate precipitation. A polish D.E. filtration is done with a pressure-leaf filter.

Bottled wine usually has SO_2 levels at 28 to 30 ppm free (depending on pH) and 60 to 75 ppm total. Bottle ageing from six months to one year is done before release.

Merlion Winery

SAUVRIER is a 50/50 proprietary blend of Sauvignon blanc and Semillon.

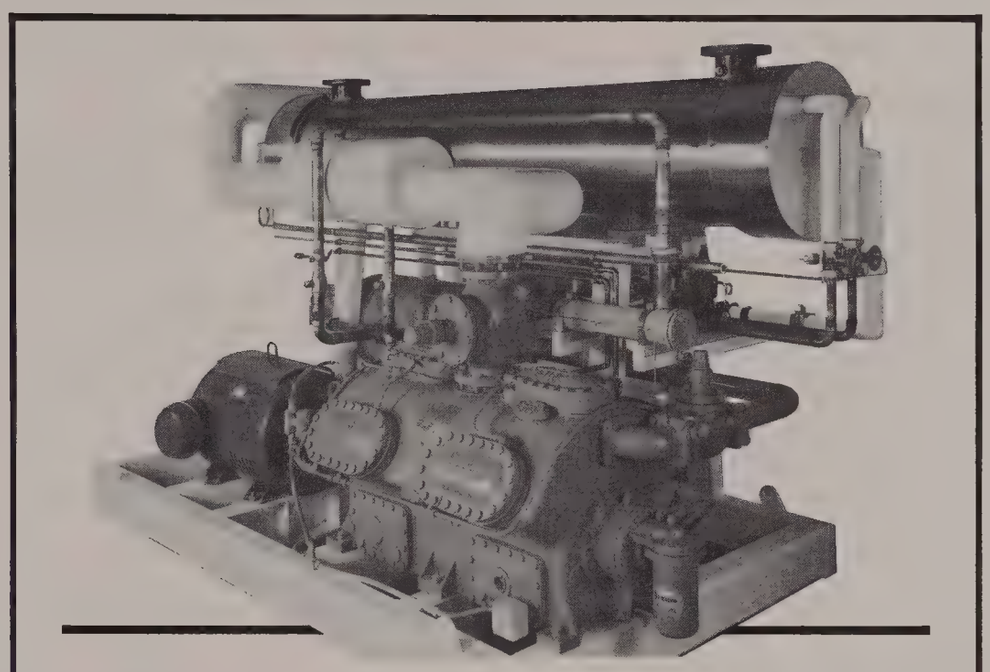
Style: "We're aiming to produce a white table wine with fruit, body, and acid in harmonious balance," winemaker John McKay states. "We aim to have the distinctive character of Sauvignon blanc subtly evident."

McKay blends with Semillon to mitigate the overtly aggressive, weedy qualities of cool climate Sauvignon blanc. He maintains it adds body and fullness to an otherwise lean wine. "Additionally, it extends the bottle life dramatically," he asserts.

Vineyards: Grapes for SAUVRIER come from a Region I, Carneros-Napa site with Haire sandy-loam soil of moderate depth. Seven-year-old Wente, Phelps, and Congress Springs clones, yielding four to five tons/acre, are drip-irrigated and planted 7×10 on AXR-1 rootstock.

Vines are T-top trellised with two fruiting wires in an attempt to develop a taller, more vertical trellis, for better light exposure to the fruiting canes.

Pruning to three or four canes with 12



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VARIETAL REVIEW

to 14 buds each is done mid-winter. "More wood is left each year in an attempt to diminish vine vigor," McKay reports. The vines are suckered, and in July, are leaf-pulled.

Starting at shoot appearance in March, Bayleton and wettable sulfur are applied. Sulfur dusting is done after bloom in May.

At picking, Merlion considers sugar, acid, and pH in balance with the following parameters. For Sauvignon blanc: 21° to 22° Brix, 0.89 to 0.95 TA, and 3.10 to 3.15 pH. For Semillon: 20.3° to 21° Brix with 0.80 to 0.85 TA, and a pH of 3.10 to 3.18.

Winemaking: Settled and racked juice is inoculated with 2-lb/1,000 gal active-dry Prise de Mousse yeast. Half is transferred to two to five-year-old French oak puncheons for fermentation. This wine is left *sur lie* for six months.

The remainder is tank fermented at 55°F and aged in puncheons for six to nine months.

After fermentation completes, 40 ppm SO_2 is added. During the barrel regime, free SO_2 levels are maintained at 15 ppm. Blending is done after barrel ageing. Only bentonite is used for clarification.

In the summer following harvest, the wine is bottled with SO_2 levels at 25 ppm free and approximately 90 ppm total. It is released to market after about one year of bottle ageing.

Vichon Winery

CHEVRIGNON is a 50/50 Sauvignon blanc/Semillon proprietary blend.

Style: "Ideally, we would like CHEVRIGNON to combine the fresh, fruity, crisp, Sauvignon blanc components with the rounded, toasty, fuller flavors of Semillon," says director of winemaking Michael Weis.

At Vichon, Sauvignon blanc and Semillon are considered two distinctly different wines. Sauvignon blanc is viewed as aggressive with strong, tropical-citrus fruitiness, herbal-grassy aromas, and high acid levels. Semillon, with lower acidity, has subdued tropical fruit, melon, and (sometimes) fig aromas.

Blending these wines has several advantages. The aggressive, occasionally dominating characteristics of Sauvignon blanc are balanced by Semillon. The aroma becomes subtler and acid edginess is lost. Both aromas and flavors become more rounded.

The subtler attributes of Semillon are boosted by Sauvignon blanc. Acidulation of the lower-acid Semillon is avoided when blended with Sauvignon blanc.

"Semillon definitely increases the longevity of CHEVRIGNON," says winemaker Karen Culler. "Semillon acquires a nutty, toasty character as it ages. This change usually coincides with the diminishing fruitiness of the Sauvignon blanc.

"Some Chevrignons have lasted seven to nine years. At this point, we are still unsure of its full ageing potential, except to say that a blend with Semillon probably ages longer than Sauvignon blanc by itself."

Vineyards: Grapes are sourced throughout the Napa Valley with Rutherford as the northern limit and the Coombsville area as the southern limit. Soils are mostly deep, fertile, and well-drained.

Vines average 7 to 12 years in age. Vineyard practices, trellising, and pruning techniques vary widely within the various vineyard sites. Rootstocks are either AXR-1 or St. George.

Most vineyards are spaced 8×12 and have leaves pulled to open the Sauvignon blanc canopy and reduce vegetal character.

At harvest, occurring late August through mid-September, yields vary from two to seven tons/acre.

Growers exercise powdery mildew control with wettable sulfur and sulfur dust through set. They then switch to Bayleton or Rally. Other sprays vary with the grower, but usually are only for leafhoppers and, possibly a fungicide for botrytis.

Flavor development is the primary consideration for the timing of harvest. Because of different vineyard characteristics and locations, harvest analysis vary for Sauvignon blanc from 21.5° to 22.5° Brix, 0.80 to 0.90 TA, with an average 3.20 pH. Semillon comes in at 22° to 23° Brix, 0.50 TA and 3.30 pH.

"In a rainy harvest, such as 1989, Semillon, which is very rot susceptible, was picked at a lower sugar but it had surprisingly mature flavors," Weis reports.

Winemaking: Grapes go directly to a bladder press without crushing or destemming. If any rot is present, SO_2 is added. If the fruit is clean, SO_2 is not added until fermentation completes.

At this latter, more ideal time, free SO_2 levels are brought to 15 ppm free for Sauvignon blanc and about 18 ppm free for Semillon. These levels are maintained during a four to six-month puncheon ageing.

After overnight settling and racking, juice is inoculated with 2-lb/1,000 gal liquid or active-dry Prise de Mousse yeast.

Fermentation, ideally at 55°F (but occasionally reaching 65°F) is done in three-year-old or older Nevers oak puncheons.

Upon completion of puncheon ageing, the wine is pumped to blending tanks, bentonited for protein stability, and fined with isinglas.

A pad filtration is done prior to bottling in March or April following harvest.

At bottling, SO_2 levels are 18 to 20 ppm free and 60 to 70 ppm total. Bottled wine is given approximately six months' ageing prior to release. ■

Editor's Note:

Table accidentally omitted from "Wine Evaporation from Barrels," **PWV**-Jan/Feb 1991:

Table I. Estimation of Evaporative Loss From Barrels (% per year)

Temperature		Relative Humidity											
°C	°F	40	45	50	55	60	65	70	75	80	85	90	95
10.0	50.0	4.79	4.42	4.04	3.66	3.28	2.90	2.52	2.15	1.77	1.39	1.01	0.63
10.5	50.9	4.96	4.57	4.17	3.78	3.39	3.00	2.61	2.22	1.83	1.44	1.05	0.65
11.0	51.8	5.12	4.72	4.31	3.91	3.51	3.10	2.70	2.29	1.89	1.48	1.08	0.68
11.5	52.7	5.29	4.88	4.46	4.04	3.62	3.21	2.79	2.37	1.95	1.53	1.12	0.70
12.0	53.6	5.47	5.04	4.61	4.18	3.74	3.31	2.88	2.45	2.02	1.58	1.15	0.72
12.5	54.5	5.65	5.21	4.76	4.31	3.87	3.42	2.98	2.53	2.08	1.64	1.19	0.74
13.0	55.4	5.84	5.38	4.92	4.46	4.00	3.53	3.07	2.61	2.15	1.69	1.23	0.77
13.5	56.3	6.03	5.56	5.08	4.60	4.13	3.65	3.17	2.70	2.22	1.74	1.27	0.79
14.0	57.2	6.23	5.74	5.25	4.76	4.26	3.77	3.28	2.79	2.29	1.80	1.31	0.82
14.5	58.1	6.44	5.93	5.42	4.91	4.40	3.89	3.39	2.88	2.37	1.86	1.35	0.84
15.0	59.0	6.65	6.12	5.60	5.07	4.55	4.02	3.50	2.97	2.44	1.92	1.39	0.87
15.5	59.9	6.86	6.32	5.78	5.24	4.69	4.15	3.61	3.07	2.52	1.98	1.44	0.90
16.0	60.8	7.08	6.52	5.96	5.40	4.84	4.28	3.72	3.16	2.60	2.04	1.48	0.92
16.5	61.7	7.31	6.74	6.16	5.58	5.00	4.42	3.84	3.27	2.69	2.11	1.53	0.95
17.0	62.6	7.55	6.95	6.35	5.76	5.16	4.56	3.97	3.37	2.77	2.18	1.58	0.98
17.5	63.5	7.79	7.17	6.56	5.94	5.33	4.71	4.09	3.48	2.86	2.25	1.63	1.01
18.0	64.4	8.04	7.40	6.77	6.13	5.50	4.86	4.22	3.59	2.95	2.32	1.68	1.05
18.5	65.3	8.29	7.64	6.98	6.33	5.67	5.01	4.36	3.70	3.05	2.39	1.73	1.08
19.0	66.2	8.56	7.88	7.20	6.53	5.85	5.17	4.49	3.82	3.14	2.46	1.79	1.11
19.5	67.1	8.83	8.13	7.43	6.73	6.03	5.33	4.64	3.94	3.24	2.54	1.84	1.15
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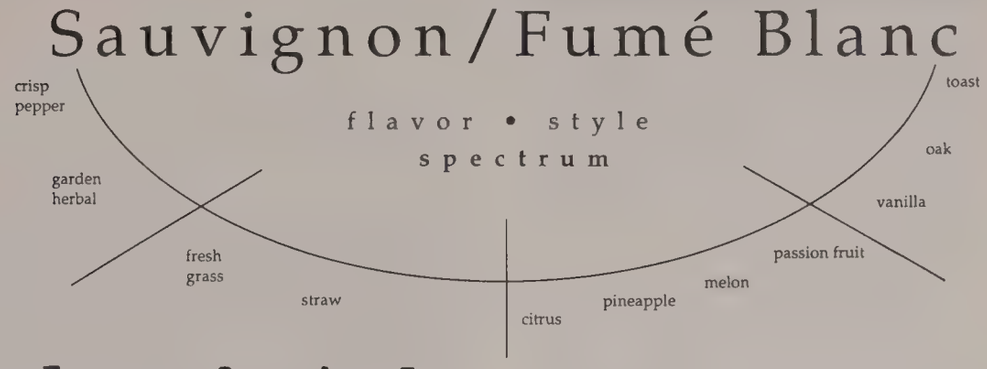

The sauce makes it A-1

By Eleanor & Ray Heald

Brian Polcyn is Executive Chef and Proprietor of Pike Street Restaurant in Pontiac, MI.

He was awarded the first runnerup award in the 1990 American Culinary Gold Cup Bocuse D'Or competition for the best American-born chef. He and his Maitre d'/Wine Director, Jon Patrus discussed food harmonies for wines reviewed in the **PWV** *Sauvignon blanc/Semillon varietal report (pages 13-18) from the viewpoint of an experienced saucier.*

At Pike Street Restaurant, Polcyn specializes in traditional cooking styles and a combination of flavors with his perpetually evolving menu. Diners at the restaurant are invited to match Polcyn's saucier talents on menu choices with a wine selection.

Many California wine producers, on trips to the Detroit Metro area, have experienced this because Polcyn's kitchen has showcased their wines.

Polcyn prepares his sauces by the triple reduction technique. As an example, herbs, garlic, and shallots are sweated with vegetables. Wine is added and reduction by ⅓ takes place. Stock is added and the sauce reduced by ⅓. Cream is added and the sauce reduced by ⅓. If a thicker consistency is desired, the sauce is reduced by ⅔.

"Sauvignon blanc/Semillon blends are intriguing and complex," Polcyn comments. "I've always considered Sauvignon blanc a straightforward, generally balanced wine for early drinking. The Sauvignon blanc/Semillon blends, however, have added dimensions of complexity that challenge a chef's ingenuity to prepare sauces for grilled foods, which, in my opinion, complement the blends best."

Polcyn categorized the wines, not by country of origin, but by flavors. "The leanest wines, let's call them category 1, remind me of crisp, fresh vegetables. For these wines, I made a grilled leek sauce for grilled shrimp."

To prepare this sauce, Polcyn broiled the leeks until they exhibited grilled flavors, before chopping them and sauteeing them in butter. He added a fish fumet, cooked the leeks tender, and blended them until smooth. The ratio of liquid to vegetable pulp thickens the sauce naturally.

This sauce harmonized with the 1989 Carmenet and the 1987 Chateau Carbonnieux because it lessened assertive elements, but enhanced the wine's distinctive style that expressed slight vegetable/herbal elements complemented by subtle oak.

In category 2, Polcyn and Patrus placed their focus on wines with a distinctive, but not overly assertive grassiness, like 1988 Inglenook-Napa Valley Gravion and 1989 Sauvrier from Merlion.

"Everybody says salsas and hot, spicy sauces are complementary to wines in this style," Polcyn states. "I prepared a salsa with tomatillos and avocado because I thought the richness of the avocado would enhance the complexities of the wine and tone down the grassiness. It didn't and the combination with the wine was weird.

"Chawa peppers stuffed with three cheeses assaulted the palate in combination with the majority of wines. Gravion was the only wine that stood up to it and put out the fire, to refresh the palate.

"In general I'd say that high-acid, slightly spicy sauces contradict these wines. In the mouth, too much is going on at the same time."

Scallops, with their delicate flavor, and a ginger-lime sauce was attractive. Here, the higher acidity of the lime was not contradictory, but fully complementary, due to the ginger in the sauce.

In category 3, "Citrus, especially grapefruit, was another dominant feature, especially when the wines were well chilled," contends Polcyn. "As the wine warmed slightly in the glass, melony and tropical fruit characteristics began to surface."

The 1989 Spectrum from de Lorimier and the 1989 Chevrignon from Vichon were considered in category 3. A simple seafood salad (without smoked salmon) complemented these wines. A rich cream sauce accented even the smallest hints of creaminess in the wine. Together with the egg noodles, the fish was properly textured in the mouth and the wine had heightened flavor impressions.

Polcyn also used a traditional red wine veal reduction sauce infused with a shrimp demiglaze for harmony in this category.

"Our favorite for sensational food matches is category 4," Polcyn says. "These wines showcase toasty oak and rich vanilla creaminess."

Polcyn focused on the 1989 Chateau La Louviere, 1989 Lyeth White, and 1989 Merlion Sauvrier for the following:

A smoked salmon glasage, consisting of a combination of Hollandaise, folded in with unsweetened, lightly whipped cream, and smoked salmon puree spread on a piece of grilled salmon and placed under the broiler to brown slightly.

"This richer combination allows the taster to experience the complex elements of the wine and the food," Patrus maintains.

For the Lyeth White in particular, the garlic in a lemon-garlic sauce made with a meat reduction, served over a grilled veal chop, accented the wine's tropical and melony fruit notes. The sauce's overall acidity refreshed the palate by heightening the wine's grapefruit characteristics with the lemony component.

A sauce of sauteed wild mushrooms (lobster, shiitake, hedgehog, and oyster), with their earthy woodiness, in combi-

nation with sherry and shallots, finished with a little cream before reduction, made wines in this category stand out.

Poured over firmer fish, this sauce also worked well for wines in category 3 because it brought subtle oak accents to the fore.

The tie that binds

"Plain cold smoked salmon did not work well with any of the wines, particularly the California blends," Polcyn contends. "Components were sticking out like sore thumbs and palate fatigue set in.

"A glasage, with its creamy richness, adds a dimension of flavor to smoked salmon that marries it with any of the blends exhibiting vanilla oakiness. The wine's balanced acidity works to cleanse the palate and invites retasting the food."

The smoked salmon glasage also worked exceptionally well with a grilled Columbia River sturgeon for the same reasons it worked well with the grilled salmon.

"In a perfect marriage, components of both the wine and food are detectable without any one element standing out," Polcyn maintains. "Sauces are the true ties that bind."

Are you SOBs reading this?

Listening to Polcyn and Patrus, was an unabashed experience in déja vu.

Polcyn and Patrus were using the same flavor quadrants as defined by the Society of Blancs (SOB) in their flavor spectrum. Luckily, we had a copy of the graphics used by SOB to illustrate the flavor spectrum and asked Polcyn if he had seen it. "No, but it's perfect," Polcyn said.

"Even though the wines broke down into four categories, there were crossovers. Grassier styles were also crisp. Wines exhibiting vanilla oakiness also had underlying tropical fruit to support the oak. Sauces help the wines bridge the four major style categories."

As an illustration of this point, Polcyn paired the grassy, yet oak-supported style of Chateau Carbonnieux with the grilled salmon and grilled leek sauce. Exceptional harmony resulted.

A creamy Stilton cheese withstood the flavor challenges of the Chateau La Louviere. The Chateau Carbonnieux was acceptable with Stilton, but the California wines paled in comparison. However, a grilled polenta with goat's cheese harmonized well with all the California-produced wines, especially with the grassier wines in category 2.

The scallops with ginger and lime sauce was a good match with wines in both category 2 and the citrus/tropical category 3 because it accented fruitier elements while leaving the palate refreshed.

A roasted, fresh fennel sauce poured over grilled tuna was interesting with wines in categories 1, 2, and 4. A fresh anise bulb was cut up and browned in a pan to bring out the vegetable's natural sugars and slight carmelized taste.

Prior to being pureed, the sectioned bulb was braised with a fish fumet. The carmelizing reduced any grassiness in the wines, heightened delicate melony characters, and highlighted gentle oaky nuances.

Champagne sauce was an all-purpose sauce complementing all the wines, especially those with higher acid levels like the Carmenet and Chevrignon from Vichon. "A Champagne sauce is easily flavored with herbs and adjusted at the last minute to match a wine style," Polcyn concludes. ■

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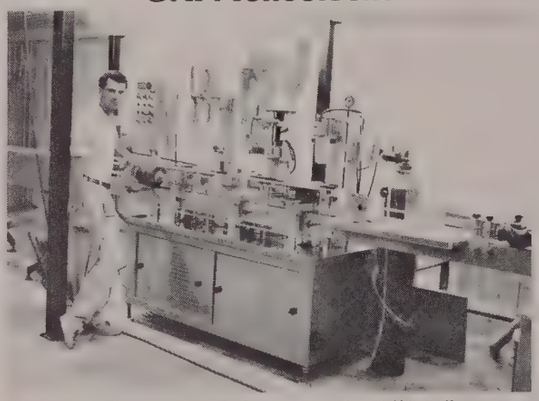

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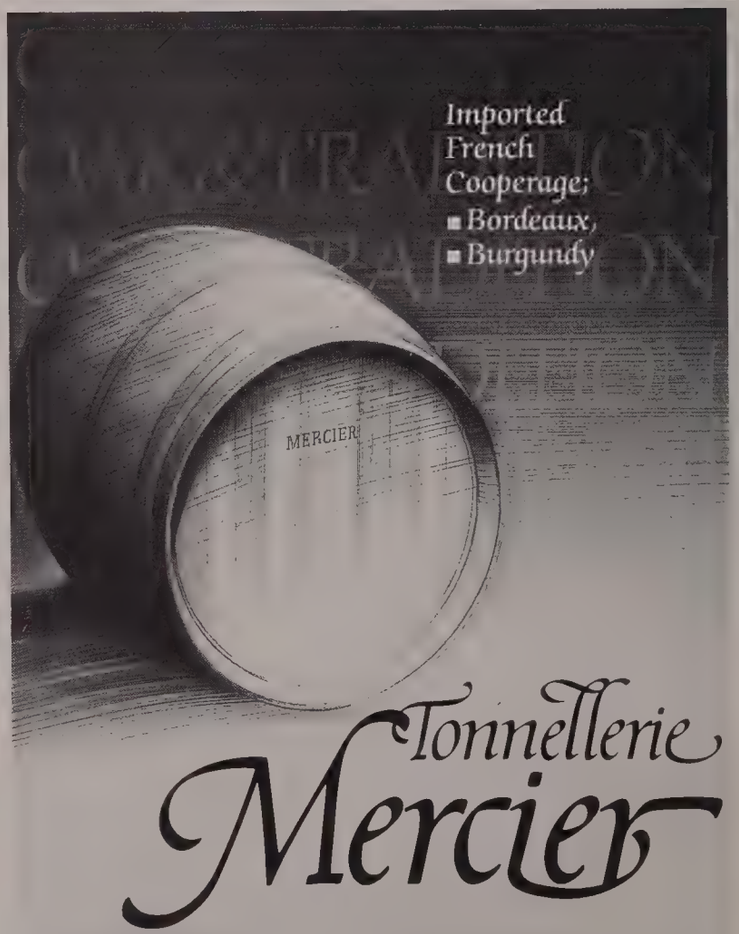

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GRAPEGROWING

FETZER VINEYARDS

LISA applied to 210 acres

Fetzer Vineyards is applying low-input sustainable agriculture (LISA) practices to 210 acres of vineyard in Mendocino County. Fetzer Vineyards uses the CCOF definition of organic and operates under the rules and regulations of the California Certified Organic Farmers (CCOF).

The 130-acre Home Ranch in Redwood Valley was certified 'organic' in 1989. Grape varieties include Cabernet Sauvignon, Sauvignon Blanc, and Zinfandel.

An additional 80 acres, at Valley Oaks Ranch in Hopland, was certified organic in 1990, according to Ron Bartolucci, General Manager, vineyard operations. Grape varieties are Chardonnay and Chenin Blanc.

Also in 1990, Fetzer began farming another 82 acres, including a five-acre experimental block which has trials to evaluate clones, spacing, trellis, rootstock, and pruning techniques, under CCOF regulations. In 1991, another 121 acres is being added to bring the total sustainable acreage to 413 acres.

Bartolucci cites six important aspects of Fetzer's sustainable viticultural practices: 1) Must deal with nature; 2) Importance of evaluating the whole system; 3) The need to develop a diverse eco-system; 4) Soil fertility is fundamental to organics, but don't overdo it; 5) The need to be a viticulturist first, organic farmer second; and 6) Implementation of intense management.

Fetzer utilizes the following trellis systems on the home ranch: cordon with a kicker cane for Cabernet Sauvignon, and head-pruned and crown-suckered on Zinfandel. Chardonnay and Chenin blanc vines at Valley Oaks are trained on a 3-wire cordon with a T-trellis.

The annual cycle of sustainable practices at Fetzer starts after harvest. Based on previous soil tests and petiole analysis, nutritional requirements are determined, including whether to add lime to neutralize pH in certain vineyard sections. In 1989, several hundred tons of compost, with lime mixed in, were disced into clay soils.

Pruning

Pruning begins in late November. Grape varieties more susceptible to eutypa (Cabernet Sauvignon, Chenin Blanc, Petite Sirah, and Zinfandel) are pruned later,

after winter rains. When big pruning cuts are made, organic Tree-seal is applied. Prunings are left in the rows to be chopped with the first mowing. The first suckering is done at approximately 10 to 12 inches of shoot growth.

Cover Crops

Based on nutritional needs and organic requirements, a cover crop seed mix is selected for bulk and/or nutrition and applied (drilled) before winter rains. Where there are overhead sprinklers, the seed is drilled in and water applied by sprinklers into the top couple of inches of soil depth. A decision is made whether to allow winter cover crop in every row or alternating rows.

Some cover crop may be cut in January to 14 inches in height or the first cut may not occur until May. In spring, the first mowing is in March or April when the ground is dry enough to put equipment into the vineyard. Nutritional requirements help determine whether to mow all or part, or turn/disc all or part of the cover crop. If green-manure/discing is done, there is faster nutritional uptake in the early stages of transition.

Care is also taken when mowing to minimize impact on the population and fertility rates of predators, to coincide with the reseeding cycle, and maximize nutrition (nitrogen, calcium, phosphorous uptake).

The first weeding in the vine row is done by plow or ridging, throwing dirt against the vines to choke weeds. Two to eight weeks later, the dirt is pulled back from the vines with a hoe plow.

Dusting in vineyard

The first sulphur dusting is applied at 3 to 3½ inches of shoot growth with 10-lbs/acre of dry sulphur dust. Dustings are repeated every seven days, except during bloom. Dusting is done in alternating rows with an air-o-fan duster.

Thrips and Cut-worms

Thrips and cut-worms can be a nuisance. If there is a cold spell at bud break, thrips can reduce shoot growth. Separate experimental applications of Dipel for cut-worms and soap for thrips have been made.

Leaf-hoppers

Grape leaf-hoppers may appear in the first ten inches of shoot growth, depending on the weather. A weekly count is done to monitor the threshold of 15 to 20 nymphs/leaf and to count the balancing predators, lacewings, and anagrous wasps. If it is necessary to reduce the threshold, two gallons of safer soap and one quart of natural oil per 100 gallons of water/acre is applied by mini-blast sprayer. Mites have not been a problem because toxic materials have not been used for leafhoppers.

Botrytis protection

If rain occurs during bloom, a copper/sulphur application is made. If there is high botrytis pressure, another copper/sulphur application is done before bunch closure.

After set is complete on Chardonnay vines, leaf-pulling is done from the cordon up to the fifth leaf in the fruit zone on the morning side. If there is a large crop, shoot-thinning is also done. ■

WINEMAKING

OGWA defines/promotes wine industry organics

The Organic Grapes into Wine Alliance (OGWA) officially adopted by-laws recently. OGWA was formed to promote production of wine from organically grown grapes. Members include small and large wineries, grape growers, wine retailers, wine importers and wholesalers, and supporting members in North America.

OGWA was originally formed in 1989 as the California Organic Wine Alliance, at the request of the California Certified Organic Farmers (CCOF). Since California State law had no definition for 'organic' wines, only for organic grapes, CCOF suggested that winemakers get together to study and define wine standards.

Currently, wines sold in California can state only "made from organically grown grapes" on the label. Use of the term 'organic wine' is undefined and may violate California state law and a proposed 'organic' definition by the Federal government.

In an effort to standardize international and North American definitions for 'organic wine', OGWA members translated, reviewed, and finally adopted production standards based on French organic wine standards developed in the early 1960s.

The OGWA standards are strict enough to be credible, yet flexible enough that they can be refined in the future. OGWA's counterparts in the northeastern U.S., the Natural Organic Farmers Association of New York (NOFA) and in France, the Union Nationale Interprofessionnelle de L'Agrobiologie (UNIA), have both endorsed the OGWA standards.

The OGWA Board of Directors is recruiting wineries interested in organic production and in developing a media plan and a resource library for the press. They hope to be involved in both state and federal organic legislation.

A majority of OGWA members believe that small amounts of added sulfites should be allowed in organic wines, as is the practice in Europe. Should any organic legislation concerning organic wines be introduced that does **not** allow for the use of sulfites, but **does** allow for the use of non-organic materials in other organic products, then it is OGWA's intention to lobby for exclusion of **all** non-organic ingredients in **all** products, including wine. Simply, if there are to be exceptions, then sulfites should be included; if sulfites are not included, then there should be no exceptions.

The OGWA standards allow sulfite levels of 100 ppm total and 30 ppm free SO_2 in organic wines, but urge winemakers to use as little SO_2 and other additives as possible. Meta-bisulfates are prohibited.

Other highlights of the standards are:

OGWA recommends that wines be made from certified organic grapes, though grapes grown according to California State organic standards are tolerated.

OGWA requires that any wine labeled as conforming to OGWA processing standards not use any toxic materials in packaging, including tin/lead capsules.

OGWA recommends the use of recycled glass bottles.

The OGWA standards also cover: grape origin; harvest and crushing; yeast; stabilizing agents; clarification and fining; coloring and decoloring; volatile acidity; acidification and deacidification; storage vessels; transport vessels; corking; and cleaning agents.

Chairman of the OGWA Board of Directors is Brian Fitzpatrick, owner of Fitzpatrick Winery in El Dorado County. He has grown grapes organically for five years and has been a CCOF board member.

Other Board members are: Veronique Raskin, owner of the Organic Wine Co., importer of French organic wines in San Francisco; Rusty Eddy, from Fetzer Vineyards in Mendocino County; Jonathan Frey, of Frey Vineyards in Mendocino County; Charles Richard, owner/winemaker of Bellerose Vineyards in Sonoma County; and Jim Lapsley, winemaker for Orleans Hill Winery in Yolo County.

For more information on wines made from organically grown grapes, or on OGWA, contact OGWA, 54 Genoa Place, San Francisco, CA 94133, Tel: 800/477-0167. Copies of the OGWA organic wine standards are available for a $10.00 fee. ■

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IN AUSTRALIA

Phylloxera and rootstock experiences

By John Whiting, Viticulturist
Dept. of Agriculture & Rural Affairs
Bendigo, Victoria, Australia

Phylloxera was first identified in Australia in 1877, about the same time it was discovered in other 'new world' vine growing regions (*e.g.* California and New Zealand). By 1910, phylloxera had been recorded in discrete areas around Sydney (New South Wales) and Brisbane (Queensland), but was more widely spread across southern, central, and north-eastern areas of the state of Victoria.

Quarantine

Quarantine restrictions were imposed in Victoria in 1878 as part of an attempt to eradicate phylloxera; in 1923, they were imposed in Victoria and other states to prevent its spread. These regulations prohibited the transfer of soil or any part of a grapevine from vineyards within districts known to be infested. The introduction of grapevines to the state of South Australia was also prohibited and it has remained completely free of phylloxera.

The spread of phylloxera appears to have been contained by quarantine restrictions. From about 1910 until the mid 1970's, phylloxera remained only in the vineyards within the quarantine districts that were infested before 1910.

In the past 15 years, there has been some relatively minor spread of phylloxera into non-grafted vineyards planted in close proximity to pre-existing infestations. Several previously infested areas in which all vines were removed for a period of at least nine years are now clear of phylloxera, and since 1960 some replanting with non-grafted vines has occurred.[1]

Since the early 1970's, vineyards have been planted in many parts of Victoria. Some vineyards are now located in cooler, higher rainfall sites which may be more favorable for phylloxera than warmer and drier areas where it currently exists.

Although Australia has not experienced the appearance of phylloxera in newly developed areas, a large proportion of these new areas, as well as most of the established areas in Australia could support phylloxera infestations.

Early developments with rootstocks

Experimentation with rootstocks in the vineyards of Victoria began in 1900 when rootstock vines and cuttings were distributed for grafting and placement in phylloxera-infested vineyards. By 1920, the rootstocks considered best suited in Victoria were 1202C, ARG#1 (AXR#1), 3306C, 3309C, 420A, and Rupestris du Lot (Rupestris St. George). These rootstocks, and also 99 Richter at a later stage, were used for replanting vineyards up to the mid 1960's.

After the recognition of several debilitating virus and virus-like diseases in rootstocks in the early 1960's, the industry adopted the almost exclusive use of ARG#1 and 1202C, which were imported as virus-tested selections from the Foundation Plant Materials Service of University of California. These rootstocks were easily propagated and performed adequately on the soils and under the management systems used at that time.

TABLE I: Rootstock screening tests against phylloxera in Australia

Rootstock Treatment	Mean # nodosities per vine
Cabernet Sauvignon	36.0
ARG #1	51.9
Harmony	31.8
5C Teleki	19.1
Rupestris du Lot	9.4
Ramsey	0.9
Schwarzmann	0.3
1202C	0.2

Source: Whiting *et al* (1987)[4]

TABLE II: Mean yield of Brown Muscat grafted to a range of rootstocks in a phylloxera-infested site (mean of four years)

Rootstock Treatment	Mean Yield (kg/vine)
5A Teleki	9.7
5C Teleki	9.5
Ramsey	9.4
5BB Kober	9.4
Schwarzmann	8.2
Harmony	8.2
1202C	8.1
Rupestris du Lot	8.0
110 Richter	6.9
420A	6.8
K51-32	6.1
Ungrafted	3.2
LSD 5%	1.9

Source: Whiting *et al* (1987)[4]

TABLE III: Resistance ratings of rootstocks to phylloxera based on Australian and overseas results and performance in field trials in Australia.

Rootstock	Species Origin	Resistance to Phylloxera[a]	Relative Yield Performance in Field Trials[b]
Ramsey	*V.champini*	High	+++
Rupestris du Lot	*V.rupestris*	Moderate	++
K51-32	*V.champini x V.riparia*	Moderate	++
K51-40	*V.champini x V.riparia*	——	++
Harmony	*V.champini x 1613 (open pollinated)*	Moderate	++
Freedom	*V.champini x 1613*	High	++++
1613C	*V.longii x [V.vinifera x (V.riparia x V.labrusca)]*	(Low-moderate)	++
Schwarzmann	*V.riparia x V.rupestris*	High	+++
5BB Kober	*V.berlandieri x V.riparia*	High	++++
5C Teleki	*V.berlandieri x V.riparia*	Moderate-high	+++
5A Teleki	*V.berlandieri x V.riparia*	High	+++
420A	*V.berlandieri x V.riparia*	(Low-high)	++
99 Richter	*V.berlandieri x V.rupestris*	High	++++
110 Richter	*V.berlandieri x V.rupestris*	High	++
140 Ruggeri	*V.berlandieri x V.rupestris*	(High)	+++
1202C	*V.vinifera x V.rupestris*	High	++/+++
ARG #1	*V.vinifera x V.rupestris*	Low	+/++
Own roots	*V.vinifera*	Low	+

a Brackets indicate ratings based on overseas literature (not fully tested in Australia). —— = Not tested.
b ++++ = good, but needs further testing in a wider range of environments;
+++ = good, but not suited in some environments;
++ = moderate;
+ = poor;
Source: Whiting *et al* (1987)[4]

However, since the 1970's, as the range of virus-tested rootstocks increased and viticultural management systems changed, re-examination of rootstock performance was necessary. Early experiences (prior to the 1970s) with rootstocks in phylloxera-infested areas near Brisbane, Queensland, and Sydney, New South Wales, were summarized by Hardie and Cirami (1988).[2]

Recent rootstock assessment

In 1975, the Dept. of Agriculture & Rural Affairs in Victoria began testing many new rootstocks in field trials, establishing eight trials in different soil types and degrees of phylloxera infestation. In conjunction with the rootstock trials, studies on the biology of phylloxera and screening for rootstock resistance to the insect on potted vines were conducted.

Of particular interest was the performance of *Vitis berlandieri* X *V. riparia* and *V. berlandieri* X *V. rupestris*, hybrids popular in Europe for their performance under phylloxera-infested conditions.

The rootstocks commonly used to resist phylloxera in Australia until the 1970's, ARG#1 and 1202C, had been discarded in Europe and South Africa for unsatisfactory resistance to phylloxera. Also, there were rootstocks that performed well in nematode-infested soils (Ramsey and Schwarzmann), but no information was available on their resistance to phylloxera.

The screening of rootstocks for resistance to phylloxera using potted vines was conducted under glasshouse and shadehouse conditions. Samples of root galls, containing mixed populations of phylloxera (adults, nymphs, and eggs), were added to each pot. After several months, the roots were washed free of soil and the root galling (nodosities and tuberosities) was evaluated. Table I contains results from one such screening test. Tuberosities were rare on rootstocks other than ARG#1 and *V. vinifera* vines.

Summary of rootstock performance

In all field trials, the performance of non-grafted *V. vinifera* vines was poor where phylloxera was present, either alone or with nematodes (primarily root-knot and citrus nematode), and was inversely related to the pest pressure. Phylloxera was very damaging to non-grafted

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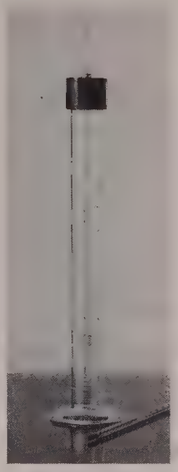

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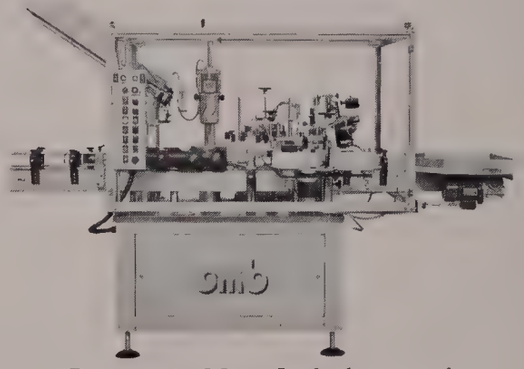

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vines even where adequate soil moisture levels were retained. Results from one trial (Table II) are typical of the relative yields between rootstocks.

In general, rootstocks that performed well in our trials under moderate to high phylloxera infestations were 99 Richter, Freedom, 140 Ruggeri, 5C Teleki, 5BB Kober, 5A Teleki, Ramsey, and Schwarzmann. The latter five also performed well under phylloxera and nematode conditions. Table III summarizes the resistance of rootstocks that have been tested in our trials and their relative yield in field trials.

The relative yield performance of all rootstocks is not just based on the data presented in Table II. For example, data from one other trial where only phylloxera is present shows Rupestris du Lot yielding significantly less (P=0.05) than seven other rootstocks. Thus, Rupestris du Lot would not be classed as a good rootstock for phylloxera under Australian conditions.

ARG#1 rootstock performed poorly in all sites with moderate to high numbers of phylloxera. This rootstock also showed relatively low resistance to phylloxera in pot-screening tests.

Several other rootstocks (5C Teleki and Rupestris du Lot) showed a surprisingly high degree of root galling in our screening tests and further investigation is under way.

Classification of Rupestris du Lot as moderate resistance in pot screening trials was based on other evidence apart from the number of nodosities, *e.g.*, relatively low root weight on infested vines compared to uninfested vines.

ARG#1 and also Rupestris du Lot were poor performers where nematodes were present. There has been no evidence of phylloxera biotypes influencing the performance of rootstocks in the field trials.

If ARG#1 is established in sites with no or low phylloxera infestation, it can perform moderately well. But if it is established in a high phylloxera infestation, it does not yield well. For this reason, and the low resistance rating in pot screening, ARG#1 is no longer recommended for use in Australia.

Rootstock performance can also be modified by environmental conditions.[2,3] Thus, the selection of rootstocks in phylloxera-infested situations needs to take environmental factors into account (*i.e.*, soil type, water availability, soil pH, lime content, waterlogging, etc.). However, the primary factor is adequate resistance to phylloxera; pot-screening techniques can rapidly provide an answer.

Conclusion

In Australia, we are fortunate not to have had a rapid spread of phylloxera in recent years. This has been primarily due to quarantine regulations prohibiting the transfer of grapevine material out of infested districts.

The Dept. of Agriculture & Rural Affairs in Victoria, with assistance from sections of the Australian grape industries, has developed a program for screening rootstock resistance to phylloxera, assessing the performance of rootstocks under field conditions, and developing rootstock sources to provide the best available cutting material to nurseries and growers for propagation.

The screening for resistance ratings on potted vines provides a rapid answer to the response of rootstocks under phyl-

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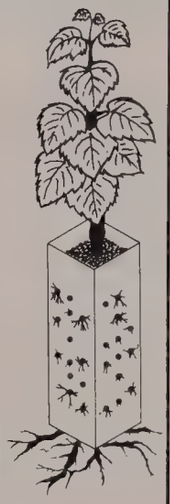

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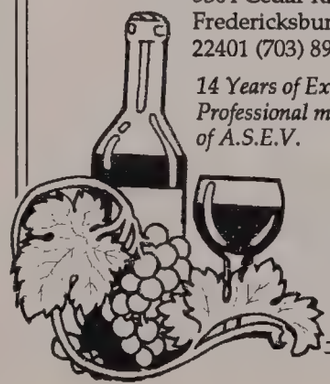

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loxera attack, while rootstock adaptation to particular environments requires longer term assessment.

Acknowledgements

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Editor's Note:

Phylloxera problems with St. George rootstock have not been encountered in California in 80 years of use.

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Techniques for vineyard water management

By Charles Krauter,
Keith Striegler
California State University, Fresno

Irrigation is one of the most important techniques in viticulture. Applying the right amount of water at the right time is vital to the yield and quality of the grapes. Because water is increasingly scarce and expensive, improving the efficiency of its application is becoming an important economic factor.

There are three basic methods of managing vineyard irrigation. Each has advantages and disadvantages, but each is best applied to a particular situation.

The first and oldest method is soil moisture monitoring. If used properly, instruments such as tensiometers, gypsum blocks, and neutron probes can provide an accurate measurement of the amount of water available in the vine's root zone.

A second method is direct measurement of plant water stress. This is the newest and potentially the most valuable if it can be developed for commercial use.

The third method is water budgeting, often called Et scheduling. Water budgeting is certainly the easiest, but it is also the least direct. It can estimate both the timing and amount of irrigation but one of the other methods usually will be required for verification.

Soil moisture monitoring

The use of instruments to monitor soil moisture is similar to checking a fuel gauge in an automobile. They provide a quick, easily measured indication of the amount of water remaining in the root zone of the vines.

Devices like tensiometers and conductivity blocks are inexpensive and reliable if used properly. They respond to the same force of attraction between water and soil particles that the root must overcome to take up the water. Consequently, they are best used for deciding when that force has become too high for sufficient uptake and an irrigation is needed. These instruments are not as useful for measuring the amount of water that needs to be applied.

A tensiometer indicates when the supply of water is almost gone. However, some experimentation may be necessary to determine the amount of water required to fill up the root zone.

Conductivity devices such as gypsum blocks respond to the same soil moisture conditions as tensiometers but they are usually not as accurate in very moist soil. A tensiometer can only read soil moisture when the root zone is fairly moist. It goes off-scale and fails before the soil moisture is completely used up. The range of soil moisture at which the conductivity block is most accurate is at about the point where the tensiometer quits.

Most grape vines will begin to stress when the soil water content is still in the tensiometer's range of measurement, so they are a good choice for viticultural applications. Gypsum blocks are more often used for field crops or where the manager wishes to dry the soil to a point beyond the range of a tensiometer. Some new conductivity blocks have a better range of sensitivity and since blocks are less vulnerable to damage during cultural practices and freezes, they may be an ideal choice for vineyard moisture monitoring.

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that it very accurately measures the amount of soil moisture rather than the strength of the attraction holding the water in the soil. The probe can indicate precisely how much water is in the soil, but not the point at which the soil moisture is low enough to cause water stress in the vines. Different soils will hold different amounts of water.

The user of a neutron probe must calibrate the instrument for a particular soil and root zone depth for the readings to be of maximum value. Once that calibration has been done for the soil and crop, the neutron probe will provide the best data for irrigation management if maximum accuracy is needed. Tensiometers and gypsum blocks, however, have been successfully used for decades and will often provide adequate information at a substantially lower cost.

Monitoring plant water stress

A device that measures vine water stress is potentially the best method of water management, since that is the element that irrigation is supposed to control. Water stress will occur at different soil water contents, or evapotranspiration rates, so management methods that rely on these factors may at times be in error.

When a vine is water-stressed, its growth rate will be reduced, and that will often decrease yield. There may be benefits to mildly stressing the vine at some growth stages but those benefits can only be consistently achieved if the stress level can be measured and the irrigations precisely controlled.

Unfortunately, most of the devices that detect water stress in the vine are expensive, delicate research instruments, such as the porometer and the pressure chamber, that may only work under certain conditions. They subject the leaf to mechanical sensors in order to measure changes in leaf water potential. The pressure chamber is used for management of some field crops but no method has been developed for its use in commercial viticulture.

In the past several years, however, a technique using an infrared thermometer to measure leaf temperature has been tried with some success. The technique is promising and research is currently in progress to develop it for use in commercial viticulture.

Unstressed vines transpire a great deal from their leaves in hot weather and therefore reduce their temperature significantly by evaporative cooling. Stressed vines cannot evaporate as much water, so their leaves will not be cooled as much.

It is possible to predict the temperature of an unstressed leaf from measurements of the air temperature and humidity. The infrared thermometer can take the actual temperature of a large number of vine leaves in a short time and compare it to the predicted leaf temperature.

The ratio of the predicted, unstressed leaf temperature to the actual measured leaf temperature can be expressed as a number called the Crop Water Stress Index (CWSI). If the leaves are actually as cool as the predicted value, the CWSI will be 0 for the unstressed vines. If it is stressed, the CWSI will be more than 0; the higher the level of stress, the higher the number.

The manager must know the vineyard well enough to be able to determine the reason for a stress detected by the CWSI

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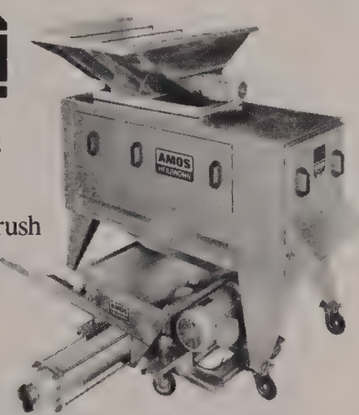

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method. Insect damage and disease can result in plant stress that irrigation cannot relieve. When the problem is actually water stress, it may not be controllable by better irrigation management.

For example, on a hot or windy day, a vine may be stressed to some degree even though the soil is filled with water. Extreme atmospheric conditions can draw more water out of the leaves than the root system is capable of supplying.

Since the CWSI should be measured in the middle of the day, this unavoidable stress may often be apparent and the manager will have to be familiar enough with the phenomenon to know that it cannot be prevented.

Exceptionally cool temperatures or fog can reduce the transpiration rate of the vines to the point where the plant can get sufficient water from a relatively dry soil for those conditions. No stress will be measurable on such a day, but the manager must be aware that when normal temperatures return, the vines may suddenly be short of water.

The measurement of leaf temperature with an infrared thermometer can easily be in error unless the instrument is carefully aimed to read only sunlit leaves. If surfaces such as the sky, soil, or wood are included in the field of view of the sensor, large errors can result. Correct technique can provide accurate readings, allowing the CWSI to be properly calculated.

The advantage of the method is its ability to quickly measure conditions over a large area. It is the only device than can provide the manager with sufficient, real time, water stress information to allow daily adjustments in the irrigation schedule.

If an intentional or programmed stress level is desired, a drip system can be used to vary the application by reducing the irrigation when the CWSI is too low and increasing it when the CWSI exceeds the desired level. This is the only way that changes in water stress due to changes in growth stage or evapotranspiration can be taken into account.

Direct measurement of plant water stress is, at the moment, the most difficult method, but it could become the most useful once proper techniques and management interpretations have been established.

Water Budgeting

The third basic method of water management is water budgeting, often called 'Et scheduling'. It is essentially an application of accounting with water instead of money. The manager tracks irrigations, water stored in the root zone, and evapotranspiration just as an accountant tracks income, bank balance, and expenses.

Et scheduling is best done on a small computer with programs very much like the accounting systems available for PC's. The manager estimates the amount of water in the root zone of the vine and then deducts the amount used each day by evapotranspiration. When the soil water has been depleted to the point where an irrigation is needed, the amount missing from the soil is applied in an irrigation and the root zone account balance is replenished.

The advantage of this method is speed and adaptability to computerization once the system is set up with the initial information and estimates. The major problem with the method is acquiring accurate initial information and making pre-

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cise estimates of the water available to the vines and daily evapotranspiration. The total amount of water in the root zone is not difficult to estimate, but the portion of that amount that the vine can use without being stressed is not so easy to calculate.

Usually, only 25% to 50% of the water in the root zone is readily available, and an irrigation should take place when that amount has been taken up by the vine. One of the more difficult decisions to be made is the selection of this 'allowable depletion' of the vine root zone. The other difficult estimation the manager must make is deciding just how much water the vine used each day, *i.e.*, the evapotranspiration or Et.

The Et of the vines depends on both the weather conditions for that day and the growth characteristics of the particular vineyard. Temperature, humidity, wind, and sunlight can be used in a formula to calculate a generic value called the reference Et.

This process is complex and expensive for an individual grower, but there is a network of weather stations operated by the state of California called CIMIS. These stations are located in all major growing areas and can be used to obtain a reference Et for that region. (The Et information may also be available from private or public sources in other states, or in regions in California not served by CIMIS. Data from these other sources may have to be converted to the proper Et form by the user.)

The Et from CIMIS must then be corrected for the particular growth characteristics of a vineyard to get the daily water use of the vines being managed. This daily crop Et is then deducted from the estimated water supply in the root zone. When an irrigation is called for, the amount to be applied is the total of the daily Et's since the last irrigation.

This process can be used in its simplest form to make rough estimates of the irrigation schedule, or it can use carefully measured inputs to make the estimates more precise. Extra effort in correcting the reference Et from the weather station with crop and stress coefficients is the best way to increase the accuracy of the water budget.

Conclusion

The question of which of these three basic methods is best for vineyard water management has no simple answer. They can each be used effectively once the manager has properly set them up and become experienced in their operation. None of them can deliver precise irrigation schedules immediately; they all require some fine-tuning, for a season or more, to reach maximum utility.

One generalization that can be made is that the best management often combines two of the methods. Many professional consultants use the water budget to make estimates of the irrigation schedule and then use soil moisture instruments to regularly check the accuracy of the Et program.

The computer-based Et schedule is easy to generate and the soil instruments need only to be read once or twice a week to verify it. As this plant stress measurement method becomes more established, it could replace soil moisture monitoring in the hierachy of water management methods. ■

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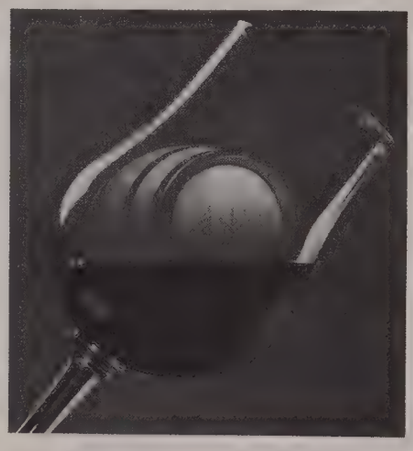

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MARKETING

Saving Money
with Guerrilla Marketing

By Jay Conrad Levinson

When most wineries think about marketing, they think about spending money. There's nothing wrong with that mindset. After all, marketing is not really an expense if you do it right; it's an investment.

Some wineries think they can save money by cutting marketing. That's a bad idea. Stopping your marketing to save money is a lot like stopping your watch to save time. Life doesn't work that way.

If you want the best of both worlds — aggressive marketing plus cost-savings — I suggest you try some or all of these ideas:

1. Realize that small is beautiful. Instead of using a big ad agency, consider working with a consultant or a freelancer. Realize that many small ads are better than just a few large ads. Run 30-second spots instead of 60-second spots. See if you can make your point in 15 seconds.

2. Place your ads through your own house agency or through a media-buying service. You save money with the former, time **and** money with the latter.

3. Obtain free research by creating your own customer questionnaire and by leaning on your reference librarian.

4. Look into regional editions of national magazines. Consider buying remnant magazine space at even lower cost.

5. Experiment and test your marketing. That way, you'll be able to run only proven successes, not shots in the dark.

6. Stick with one marketing campaign. Don't switch around. This will not only lower your production costs, it will also increase the effectiveness of your marketing.

7. Write timeless ads and brochures. Don't say "Our winery is five-years-old." Next year, that will have to be updated. Instead, say "Our winery was founded in 1986." And don't show photos of employees in your marketing. Such photos might make the ad or brochure obsolete when there are new employees.

8. Find multiple uses for your marketing materials (design them with this in mind). Reproduce an enlarged panel of your brochure as an ad.

9. Invite your retailers and distributors to co-op advertising funds. Call 415/957-5886 for more data.

10. Look into P.O. arrangements with the media. P.O. stands for 'per order' — meaning that the medium gets a percentage of each sale you make rather than getting list price.

11. If you'll be printing something in full color, be willing to wait and get in on a gang run. You wait a little longer, but you save money.

12. Reprint any publicity stories about you and use them as part of mailings, and as signs and framed sales aids. Yesterday's newspaper is dead and gone; yesterday's PR story can (and should) live forever.

13. If you're about to do a direct mailing, try to do it with a postcard, if possible. You can save money and increase your response rate at the same time.

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pared for less than $1,000. And they worked better than the costly ones.

The two biggest mistakes in marketing are spending too little and spending too much. Guerrillas make neither mistake. ■

(Jay Conrad Levinson is the author of several GUERRILLA MARKETING books and The Guerrilla Marketing Newsletter. His latest book is The Ninety-Minute Hour. To order or request a free brochure, call toll-free 800/748-6444. In Calif. call 415/381-8361.)

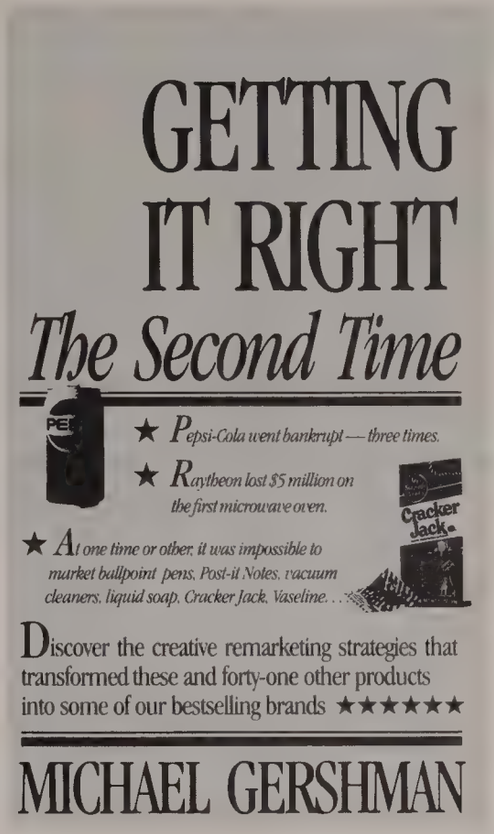
Book Report

GETTING IT RIGHT

The Second Time
By Michael Gershman
published by Addison-Wesley Publishing Co, Inc., 1990 270 pages, $19.95

The frustrated owner of the Jello trademark once offered to sell it for $35.00 and was refused. Dixie cups languished for years because consumers saw no value in throw-away cups — until the ice cream industry wanted to sell single-serve portions to compete with the newly-invented candy bar. Now 42 million Dixie cups are used everyday for many purposes.

These two stories and another 45 make fascinating and inspiring reading. This well-documented account of the turnaround and near abandonment of many brands that are now household names is excellent reading for everyone who wonders if they couldn't improve their brand position.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★ At one time or other, it was impossible to market ballpoint pens, Post-it Notes, vacuum cleaners, liquid soap, Cracker Jack, Vaseline. . .
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One of Gershman's exciting premises is that the traditional four P's of marketing (product, promotion, price, and place) are obsolete. He adds the concepts: perception, pitch, packaging, promises, piggybacking, positioning, placement, premiums, publicity, and perseverance. All of these are illustrated as he tells the stories of 47 individual brands.

Read this book and find out why Wheaties is called the breakfast of champions, why Maxwell House coffee is advertised as good to the last drop, why the temperance movement nearly sunk Hires Root Beer, the grape expectations of Welch's, and how athletes became supporters of Lite Beer.

The book is fun, fascinating, and the inspiration it can provide might be very profitable. Highly recommended! ■

— Daniel Wilson

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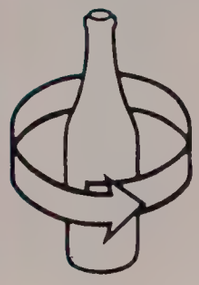

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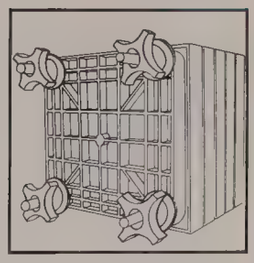

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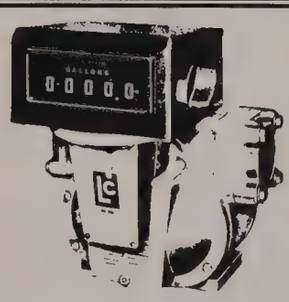

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CLASSIFIED ADS

Vintech Mobile Bottling: Sterile bottling with inverted rinser, de-aeration and gas injection station (only by GAI), pure gravity filler, vacuum corker, spinner, front and back full glue labeler. Most competitive prices. Call for scheduling now: 800/228-0664.

Wanted to buy: previously-owned destemmer or destemmer/crusher under 10 tons/hour in good condition. Contact: Jim Law, Linden Vineyards, Rt. 1, Box 96, Linden, VA 22642; tel: 703/364-1997.

Save time + $$ on sulphite analysis by the Ripper test. Send $21 for 1-litre of Vinodine[tm] photostable iodine, guaranteed against decay for 1-year, plus bonus report "Improving the Ripper method for Sulphite Analysis". Contact: **HRL**, Suite D, 1940-180 St. RR#8, Surrey, B.C., Canada, V3S 5J9. Phone: 604/531-9791; Fax: 604/224-0540.

Bottling at Your Winery — Guaranteed Sterile Bottling. Front and back label capability. Quality, professional handling of your wines. Separate labeling only service available. For additional information, contact Don Hudson, **Chateau Bottlers**, 707/963-2323, PO Box 368, Oakville, CA 94562.

FOR SALE: Standard Knapp casepacker, model 930-2CLH, 25 cpm, $25,000/OBO. Standard Knapp Sealstar 457, with Dynapply 21 hot melt, $5,000/OBO. Contact: Ron Mayer 209/369-5861.

Winemaker wanted: Award-winning winery on the North Fork of Long Island, New York, seeks an experienced winemaker knowledgeable in viticulture to handle all aspects of production. Varietals include: Chardonnay, Cabernet Sauvignon, Merlot, White Riesling, and Sauvignon Blanc. Maximum production is currently 16,000 cases. U.C. Davis graduate and several years experience preferred. We offer excellent compensation and job security. Send resume and phone number to Bidwell Vineyards, Route 48, Cutchogue, NY 11935. A great opportunity in an up and coming wine region.

BULLDOG PUP — quality design of this stainless steel racking wand allows you to move wine **gently** using nitrogen pressure. Winemakers love the PUP for racking and/or topping. For information, call the Boswell Company 415/457-3955 or Fax 415/457-0304.

Refractometers — $170; pH pens — $99; lab chemicals, glassware, apparatus. **Custom Lab Supply**, 2127 Research Dr., Livermore, CA 94550, phone: 415/449-4371.

ESTATE BOTTLING—Portable Wine Bottling at Your Winery, Owner Operated—Quality Service—Sterile Bottling 2-label Capacity—1,500 cs/day—Generator on truck. Contact: PO Box 338, Rutherford, CA 94573, 707/963-5705.

Grapegrowing/Winemaking Courses University Extension, UC Davis, CA

May 4, Saturday

Rhône varietal production in California — Update and continuance of previous Rhône classes will combine lectures and tastings to introduce winemakers to the grape varieties grown in the Rhône Valley with special concentration on some subregions. Professor Robert Mayberry, author of "The Wines of the Rhône Valley" will review history and geography of Rhône production areas. There will be a viticultural discussion of Rhône cultivars with an emphasis on those which are planted in California. There will be a panel discussion of production variables including grape maturity, cap management, and whole-cluster fermentation to determine wine style. Varietal tastings will compare French and California versions of following varieties: Syrah, Grenache (rose and red), Mourvedre, Viognier, Marsanne, and Rousanne. **Location:** UC Davis. **Coordinator:** John Buechsenstein. **Time:** 9am - 4pm. **Fee:** $135 (includes lunch and tastings).

May 4, Saturday

Successful Small Scale Winemaking—See **PWV** Calendar, Jan/Feb'91, pg 50.

May 11, Saturday

Barrels in the Winery — Industry members will discuss the role of the barrel in the winery. Topics include: Barrel construction; The barrel's contribution to the phenolic content of wine; Extraction rates and fill cycles; Sensory contribution of American, French and other oaks; and Management of microbiological problems. A tasting will illustrate oak types, toast levels, and the effect of barrel preparation on flavor. Industry panel will focus on the interaction between quality, convenience, and economics in working with barrels including purchasing, storage, evaporation, and methods of extending barrel life. **Location:** UC Davis. **Coordinator:** Richard Blazer, Enologist, Sterling Vineyards. **Time:** 9am - 4pm. **Fee:** $90 (includes tasting and box lunch.)

For further details and to enroll by phone, call 800/ 752-0881. Davis and Dixon residents or outside California call 916/757-8777.

Continued on page 47

Bottling equipment

Carlsen Associates

Carlsen manufactures bottling line conveyors, unscrambler table, pack-off table and a case turner/flipper. Conveyors can be made for small sections of existing lines or complete systems for bottles and cases. Additionally, Carlsen offers layout, design and installation service for complete new bottling lines or modification/additions to existing lines.

Design, manufacture and installation of electrical control schemes for bottling lines is also offered by Carlsen. These use both electro-mechanical and solid-state devices such as photo-electric relays, programmable controllers, and variable speed controllers.

For more information, contact: **Carlsen Associates,** 5228 Aero Dr., Santa Rosa, CA 95403, phone: 707/576-0632, fax: 707/576-7698.

Please see our ad on page 8.

The Compleat Winemaker

The Compleat Winemaker has designed and manufactures a seven-spout tabletop stainless steel bottle filler with a production rate of up to 60 cases/hour and for bottles from 6½″ to 23″ high. Spouts are removable for easy cleaning and the fill valve is pneumatically operated.

Also available is a bottle washer-purger, designed and made by The Compleat Winemaker, which has two nozzles, is semi-automatic, has adjustable time-sequencing and a production rate of up to 24 bpm with height and angle adjustments.

Foil spinners, champagne foil crimpers, Tosa Mecc (Italy) plastic foil applicators, Potdevin and Schaefer label pasters are also offered. For smaller bottling operations, The Compleat Winemaker carries the Sipi stainless bottle fillers with 2 or 4 spouts and a hand-operated Sipi floor corker which is adjustable from 10ths to magnums.

For more information, contact: **The Compleat Winemaker,** 1219 Main St., St. Helena, CA 94574, phone: 707/963-9681, fax: 707/963-7739.

Please see our ad on page 22.

Criveller Company

For the North American market, Criveller Company represents a complete line of bottling equipment manufactured by Bertolaso/Cobert.

The monobloc Duetto is designed for small and medium-sized wineries. Low vacuum fillers with an option of 9, 12, or 16 spouts, combines with the Bertolaso corker to create economical, compact, and easy-to-operate equipment. A CO_2 or nitrogen injector/leveler can be mounted before the corking heads. Corking vacuum head and hot sterilizing heads are options.

For medium/large and large wineries, the Cobert filler model Olimpia is available in sizes for any range output and incorporates high-quality materials, excellent craftsmanship and engineering.

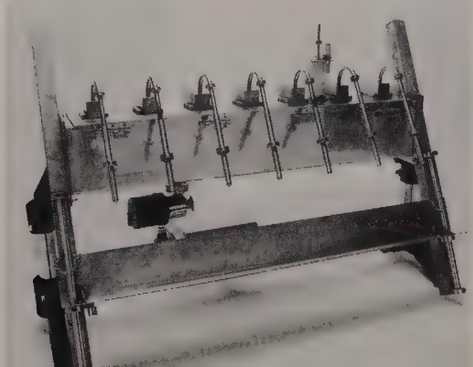
A reliable 'Suprema' pressure filler model is also manufactured by Cobert for use in carbonated and sparkling product applications.

Criveller also offers spare parts for new and older filler units.

For more information, contact: **Criveller Company,** 6935 Oakwood Dr., Niagara Falls, Ont. L2E 6S5, phone: 416/357-2930 or 416/358-5202.

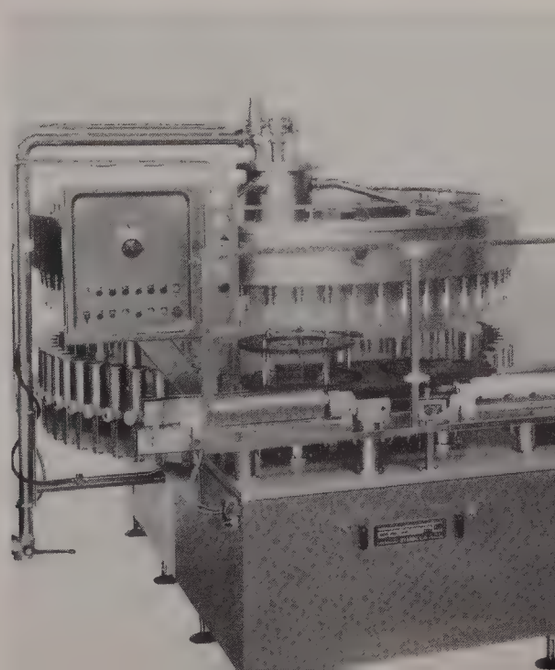
Please see our ad on page 7.

Carlsen Associates



The Compleat Winemaker

Criveller Company



ROUNDUP

Estate Bottling

Estate Bottling has served California wineries with its mobile bottling services since 1983. The 45-ft bottling van, pulled by its own tractor, incorporates a sterile, positive-pressure bottling room with a modern, well-maintained, custom-designed bottling line. It features a front and back label capacity (with a solid glue pattern) on traditional cork finished 1.5 L, 750 mL and 375 mL bottles. A broad range of label sizes can be handled without special change parts and a strip back label for the government warning can be applied in lieu of the regular back label.

A machine room in the front of the van contains air-conditioning, air and water filtration equipment, air compressor, diesel generator, water softener and heater.

Estate Bottling takes pride in making each bottling a smooth, clean, efficient and courteous experience. All the winery has to do is supply a crew of six, a fork lift, polish-filtered wine, corks, capsules, labels, glass, water and power. Estate Bottling will sterile-filter, gas-sparge, gravity-fill, vacuum-cork, foil and apply a front and lack label to 1,500 cases/day. Sterility is guaranteed.

For more information, contact: **Estate Bottling,** P.O. Box 338, Rutherford, CA 94573, phone:707/963-5705.

fp Packaging, Inc.

The Robino Galandrino T series heat-shrink monoblock machines, ranging from 150 to 400 bpm are available from fp Packaging, Inc. They combine a 'Vulcan' vertical capsule magazine dispenser (3,000, 4,500 or 9,000 capacity) monoblocked to a rotary heat shrinker with individual thermal heads.

These heads guarantee a constant temperature around the capsule, minimum leakage of heat and a highly uniform shrinkage with minimal energy expenditure. A plunger inside the head prevents the raising of the top disk. Thermal sensors and electonic regulators allow precise temperature control and adjustment when running capsules of different colors or thicknesses.

Standard models are equipped with sound-proofing, stainless steel coating, safety guards, automatic stop-start regulated by bottle feeding and automatic head-lifting when machine stops.

Available options include: ejectors for cork-less or capsule-less bottles, memorized capsule dispensing control, cork-absence detector, and bottle neck dryer.

Robino Galandrino also make separate dispensers and heat shrinkers in stand-alone or synchroblock versions.

For more information, contact: **fp Packaging, Inc.,** PO Box 881, So. San Francisco, CA 94083, phone: 415/742-5400, fax: 415/871-5950.

Please see our ad on page 14.

Krones Inc.

Krones Inc. manufactures filling equipment that is specially engineered for wineries, large or small. Manufactured in the United States, Krones offers reliable counter-pressure and vacuum/gravity fillers.

Counter-pressure fillers use double pre-evacuation for 99% effective oxygen removal and fill height correction. They are ideal for oxygen-sensitive products with automatic, integrated CIP/SIP and use inert gas for bottle pressurization.

The AcuVac vacuum/gravity filler employs lowerable, non-drip valves eliminating lift pistons. Features include an integrated CIP system, dynamic fill height correction and adjustment, bowl nitrogen sparging for product integrity, and a laminar flow of product into the bottle.

Krones provides a total systems approach for complete, integrated bottling lines with single source responsibility. Krones technical and engineering staff is U.S.-based for readily available customer support. Whatever your wine filling needs, Krones offers a reliable solution.

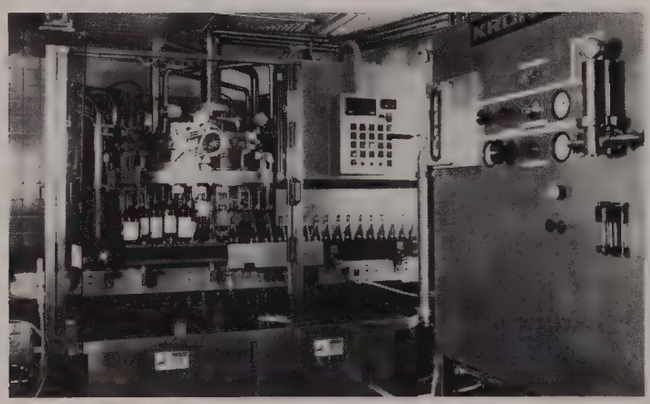
For more information, contact: **Krones Inc.,** 9600 S.58th St., Frankline, WI 53132-0100, tel: 414/421-5650.

Please see our ad on page 15.

Mag USA

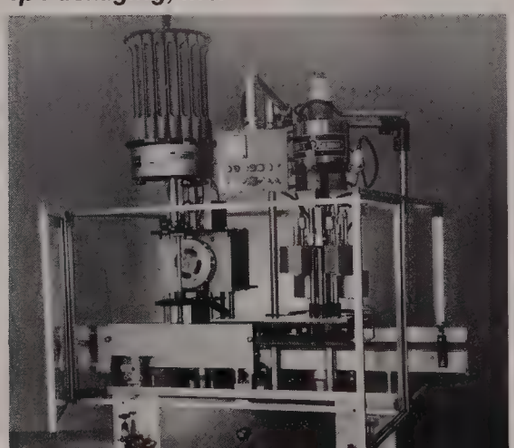
Low-vacuum, gravity, and pressure filling (all stainless steel) bottling equipment is sold and serviced by Mag USA. This equipment is available with or without corker/cappers. The filling spout is a patented MAG design with a changeable filling height inside the bottles, utilizing plug-in spacers. Machines come in models ranging from 9 to 60 filling spouts and 25 to 300 bpm. Also included is an adjustment device which allows fine-tuning of the filling height. There are no sealing rings, O-rings or gaskets in the wine flow area which could possibly allow infection into the wine.

The corker is equipped with a four jaw-lock made from hardened stainless steel.

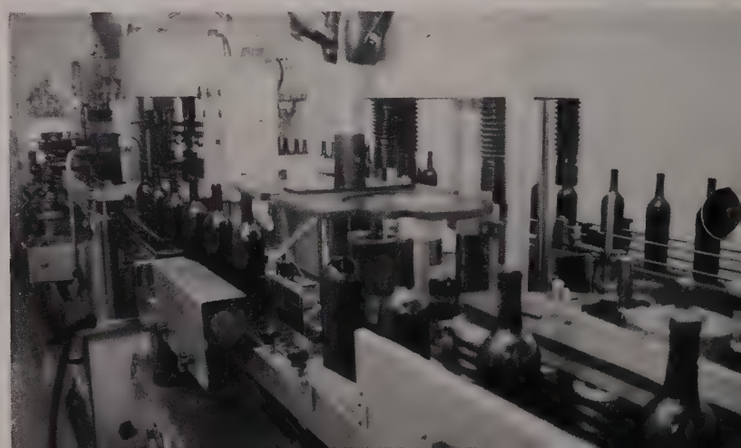


Krones Inc.

fp Packaging, Inc.



Estate Bottling



Mag USA also sells and services rotating and linear labelers which are equipped with pneumatic glue pumps and air-driven label stations. All machines are equipped with variable full gear drive (no chains or drive belts). Labeler vibration is eliminated by a changeover of plastic/metal/plastic gear segments.

Labelers can handle round or non-round containers and can be fitted with a photo-cell check system which ensures vertical line-up of foil, neck, and body labels on champagne bottles. All machines come with movable or fixed label magazines and oscillating glue pallets.

For more information, contact: **Mag USA**, PO Box 5060, Napa, CA 94581, phone: 707/253-0672, fax: 707/253-8083.

McBrady Engineering, Inc.

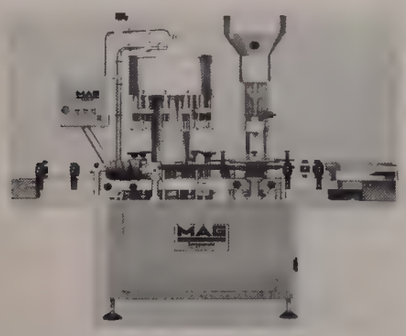
The Orbit bottle air cleaner/nitrogen gas injector is manufactured by McBrady Engineering. To date, 66 machines have been installed in the wine industry.

Clockwise rotation of the Orbit provides a continuous inverted rinse, through a stainless steel tube, first air then inert gas flushing. Four models of the stainless steel and plastic constructed Orbit cleaner/injector are available with speeds from 10 to 200 bpm.

Features include: odd shaped bottle handling, bottle sizes from 187mL to 4 L, rental change parts for 375mL and 1.5 L bottles, automatic solenoid gas shut-off valve, easy changeover of parts with no adjustment, 3″ vacuum exhaust port for connection to optional Torit dust collector and direct mounting of unit over conveyor using only 25″ of conveyor space.

The water rinser is also available for a combination water rinse/air rinse and drain/gas injection. Bottle breakage is eliminated by use of holding pockets which do not grip or squeeze.

For more information, contact: **McBrady Engineering, Inc.**, PO Box 204, E. Hazel Crest, IL 60429, phone: 708/798-6565, fax: 708/798-6595.



Mag USA

Mobile Wine Line

Mobile Wine Line owned by Dan Drummond, was the first portable bottling service available in California. It targets the winery too small to afford buying bottling equipment, but too big to hand-bottle; generally this is the 800 to 25,000 case/year winery.

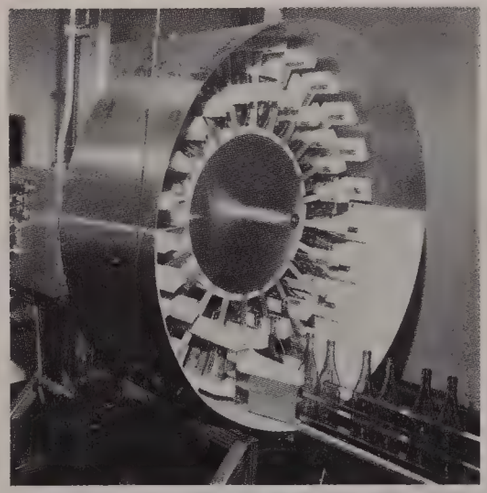
The bottling equipment is kept in a self-contained 40-ft. tractor-trailer, allowing it access to most wineries. The equipment operates on 220-volt 3-phase power normally available at the bottling site but power can be provided if needed.

The bottling line equipment is of German and American manufacture and consists of: custom loading table, McBrady Orbit bottle sparger, Seitz Fulla 12 spout vacuum filler/corker, Otto Sick automatic foil spinner, Mustang II New Jersey Machine labeler, Labelaire pressure sensitive back labeler, secondary label press and 3M Scotch tape case sealer/printer.

All equipment is sterilized prior to bottling and the sterility of the wine is guaranteed. A consulting enologist is available upon request.

Mobile Wine Line provides the important last step to your 'estate bottled' wine.

For more information, contact: **Mobile Wine Line,** 9601 Robson Road, Galt, CA 95632, phone 209/745-2871.



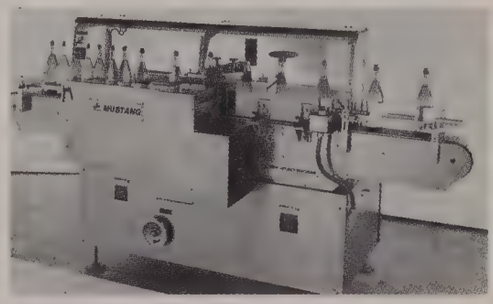
McBrady Engineering, Inc.

New Jersey Machine, Inc.

The Mustang 315 LFB front/back labeler is manufactured by New Jersey Machine to solve the problem of applying glued labels to the bottle front and back at the same time. The economical and compact labeler measures under 3 ft.×9 ft., can run at speeds up to 120 bpm, offers fast changeover with no change-part tooling, and works with most glue or label stock.

It can handle label sizes to a maximum of 14½″×5½″ high for a single label and to a maximum of 12″×5½″ for double labels. The label magazine is fully adjustable for rectangular labels; odd shapes may require some change parts. Drive speeds range from 60 to 150 cpm on single labels up to 120 cpm on double.

For more information, contact: **New Jersey Machine, Inc.,** 6 Commerce Road, Fairfield, NJ 07004-1682, phone: 201/227-8300, fax: 201/227-7913.



New Jersey Machine, Inc.

Mobile Wine Line

ROUNDUP

Prosperos Equipment Co. / A.W.S West Coast

PEC/AWS offers to US wineries, the OMB monoblock pressure-sensitive labeling machine. This unit has a synchronized rolled system which applies labels under pressure and assures that the front and back labels are positioned perfectly without wrinkles or bubbles, even on wet bottles.

Pressure sensitive labeling offers wineries the option of labels of any size or shape including die-cut.

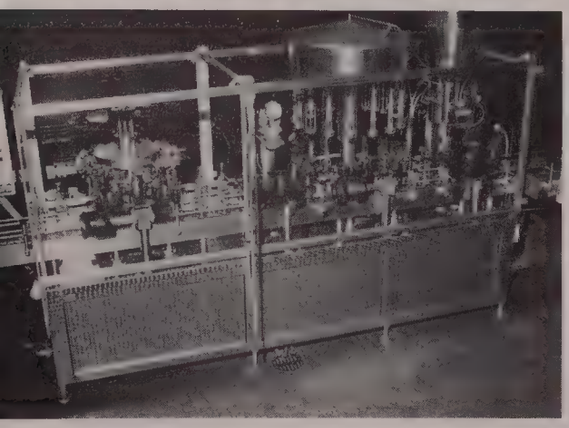
The monoblock design has an optional capsule spinner/oven and automatic capsule distributor with speeds up to 33 bpm. Also available for the OMB is a custom hot stamp printing head for custom full-color printing of attached generic front labels.

PEC/AWS also sells pressure-sensitive labeling machines for Champagne bottling, that can handle back labels and 360° wrap neck bands. These machines feature optional capsule pleater-crimper stations and full in-line or semi-automatic operation. Custom high-speed filling lines are also offered.

Pre-printed labels of high quality rotogravure printing with options including clear vinyl and fold-out booklets within the label are recently available.

For more information, contact: **P.E.C.,** 914 Marble Avenue, NY 10570, phone: 1-800/332-2219 or **A.W.S.,** 7714 Bell Road, Windsor, CA 95492, phone: 1-800/288-0664.

Please see our ads on pages 20,24.



Prosperos Equipment Co./ A.W.S. West Coast

R.L.S. Equipment Co., Inc.

R.L.S. offers the Quenard (France) and Clemens (Germany) line of bottling equipment. The Quenard equipment features self-adhesive, semi-automatic and automatic labelers which can position/apply front, back and neck labels or superimpose a new label over an existing one. A retrofit-kit is also available to enable an additional label to be applied anywhere on the bottle.

The Quenard Autofix 1500 can apply three labels at a speed of up to 1,500 bpm. The Autofix BX is a semi-automatic unit, handling various label configurations; it is ideal for smaller wineries or custom bottlings.

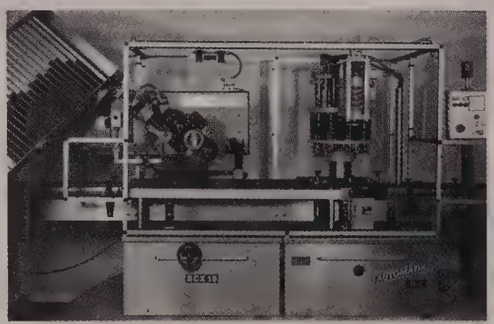
The Clemens line of durable, high-quality bottling equipment is geared for the small to mid-range winery. Equipment choices range from hand-bottling champagne and still wine to semi-automatic and automatic operation. In the hand line, additional items are available: champagne and still wine corkers, dosage, labelers, crown and wirehooders.

Monoblocs, corkers, and bottle washers are also available in both semi-automatic or automatic set-ups.

For more information, contact: **R.L.S. Equipment Co., Inc.,** P.O. Box 282, Egg Harbor City, NJ 08215, phone: 609/965-0074, or **R.L.S. West,** Inc., Napa, CA, phone: 800/527-0197.

Please see our ad on page 29.

R.L.S. Equipment Co., Inc.



Scott Laboratories, Inc.

Scott Laboratories, Inc.

Scott Laboratories, Inc. represents both the Congex and the Otto Sick machines for North America.

Congex builds a variety of capsule dispensing machines suitable for aluminum, heat shrink, polylaminate and tinned capsules. These machines are available in various speeds from 50 to 300 bpm. The mechanical action of the high speed machines assures maximum performance relative to competitive equipment.

The new Automatik series of capsule spinners from Otto Sick, feature spinning heads which descend to and rise from bottles held on a level plane. Higher yields per head are combined with a better looking final product.

Conversion parts are available to make older Otto Sick spinners suitable for everyday use with pure tin capsules.

For more information, contact: **Scott Laboratories, Inc.,** PO Box 750249, Petaluma, CA 94975, phone:416/839-9463: or Canada West, phone: 604/769-6308.

Please see our ads on pages 41,43.

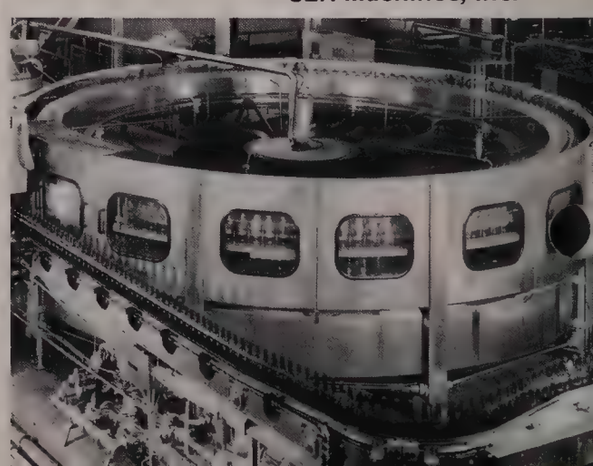
SEN Machines, Inc.,

SEN Machines, Inc., is part of the newly formed KHS Group of West Germany, manufacturer of beverage filling, filtration, and packaging equipment.

Filling machines are designed to suit a wide range of requirements, while providing gentle product handling, minimizing oxygen pick-up and ensuring a sanitary environment with sterilization capabilties.

The product line includes: sealing machines for cork or metal capsules, automatic capsule applicators, foil spinners,

SEN Machines, Inc.



heat shrink tunnels, bottle and case labeling equipment, palletize/depalletizers, case packers/unpackers, bottle conveyors, accumulators, dividers and combiners.

Also offered is technical support, design, equipment service and locally available spare parts.

SEN Machines is pleased to represent A/G Technology supplying N_2 or enriched O_2 from compressed air. Purity levels of up to 98% N_2 and 50% O_2 are available using a newly developed membrane. The system can be tailored to customer's needs and eliminates the need for expensive liquid N_2. N_2 can be used for bottle sparging, tank and product pipe line purging or any place nitrogen is used.

Possible uses for the O_2 enrichment could be to accelerate slow fermentation and for waste treatment.

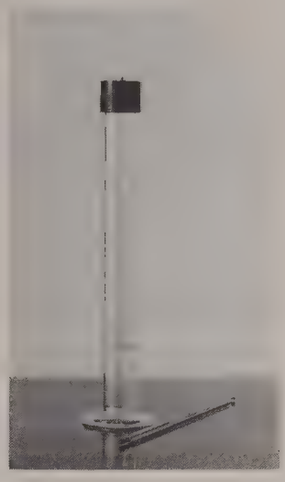
For more information, contact: **SEN Machines, Inc.**, 1350 Industrial Ave., Suite G, Petaluma, CA 94952, phone: 707/763-4844, fax: 707/763-6997.

Please see our ad on page 16.

Wine Country Gases

Wine Country Gases offers a carbodoser which is a tool for quick and accurate measurement of dissolved carbon dioxide in wine. The complete unit includes a graduated glass cylinder, capillary or eductor tube, thermometer, chart and carrying case.

In actual use, the cylinder is filled with 100 mL of wine, the tempertaure determined and the cylinder agitated vigorously. As the carbon dioxide comes out of solution, it pressurizes the liquid causing it to seek the path of least resistance, which is the eductor tube.



The carbon dioxide content is then determined by indexing the temperature and liquid level remaining in the cylinder. A direct readout of dissolved carbon dioxide in Mh/L is then made.

The L'Air Liquide valve for pressure/vacuum protection is also available from Wine Country Gases. The valve will protect either an individual tank from overpressurization/vacuum or an entire row of tanks by controlling the reservoir pipeline.

The valve is entirely mechanical in operation and requires no electric power. Gravity and pressure dynamics do all the necessary work. It is durably constructed and has an indefinite life.

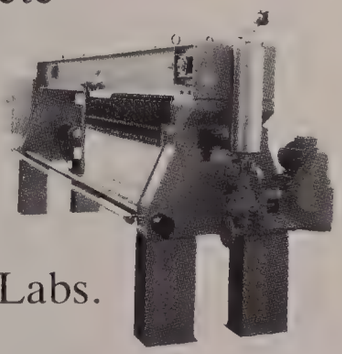
For more information, contact: **Wine Country Gases,** 3220 Santa Rosa Ave., Santa Rosa, CA 95407, phone: 707/575-8654

Please see our ad on page 24.

WINEMAKERS ENCYCLOPEDIA

lees fi'l·ter

A wide range (40x40 to 150x150) of filters which increase quality and quantity of wine recovered from lees. Complete systems include slurry tanks, plate shifters and disposal systems. See also: Velo, Scott Labs.



SCOTT LABORATORIES

SCOTT LABORATORIES INC.
2220 PINE VIEW WAY
P.O. BOX 750249
PETALUMA, CA 94975-0249
(707) 765-6666
TELEX 171494 · FAX (707) 765-6674

VELO

SCOTT LABORATORIES LTD.
950 BROCK ROAD SOUTH
PICKERING, ONT.
L1W 2A1 CANADA
(416) 839-9463
TELEX 06-981445 · FAX (416) 839-0738

SEGUIN MOREAU
Tonnellerie

Le savoir faire
La tradition

SEGUIN MOREAU, USA
Cooperage
2180 Jefferson Street, 2nd Floor - Napa, CA 94559
Tel : (707) 252-3408 Telex : 330153 Fax : (707) 252-0319

WINEMAKING

Elements of In-line and Rotary labeling machines

In-line and rotary labeling machines function very differently. Of the two, the rotary is the relative newcomer, its inception a result of demands by a progressive packaging market. Choosing between the two should be based on application requirements.

Space, a consideration formerly when evaluating a rotary labeller, is no longer a factor given the wide range of available feed-configurations and directions which allow placing a rotary machine into most new or existing bottling lines.

In-line labelers apply labels to bottles while they are being conveyed in a straight line past the label application station(s). Bottles enter the machine upright and are spaced by the feedscrew to the final machine pitch. The in-line configuration uses a variety of label compression stations from a simple spin-through to a

cammed, dual-side pad system that travels with the bottle.

Straight bottle travel eliminates selective bottle rotation and repeated positioning, which is a pre-requisite for multiple label applications to different bottle surfaces.

As a rule, in-line labelers are limited to the application of body labels, partial or full-wrap labels, or front and back labels.

By contrast, bottles traveling through rotary labelers are firmly clamped between centering bells and individual bottle plates that are cam-controlled to provide selective bottle positioning and rotation. Bottle control is never relinquished during the application and wiping process. The controlled bottle position ensures precise label placement and provides consistent exposure of the label edges to the brushes, for positive wipedown.

As a result, a wide variety of bottle shapes and sizes can be labeled with greater accuracy and consistency. Up to five labels can be applied to a single bottle, *i.e.*, front and back labels, shoulder, strip and medallion labels, full-wrap neck or skirt labels, and champagne neckbands. Speeds in excess of 1,000 bph can be attained.

Both the in-line and rotary designs can apply labels up to 13 inches long and are capable of handling bottles ranging in diameter from two inches to seven inches (375mL to 4L).

With a few exceptions, pertaining mostly

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to low-speed in-line labelers, both rotary and in-line units share the same basic label transfer method. This is true for most equipment manufacturers.

Once the bottle is in position, the label application is virtually the same, with a small difference. The final transfer to the bottle on in-line labelers is 'leading-edge', while rotary application uses a 'label center' application, which allows a simultaneous wipedown of both leading and trailing label edge.

Label stations for both in-line and rotary labelers consist of a turret with individual glue segments, one or more stationary label magazines and corresponding gripper cylinders (also commonly referred to as 'picker cylinder'), and the adhesive application roller.

Glue segments rotate or oscillate (this varies among manufacturers) past the adhesive cylinder to receive a thin film of glue which is then used to transfer the label from the label magazine. The glued label is then picked up by the gripper cylinder where it is positively held by mechanical gripper fingers until released to the bottle.

With the initial transfer completed, bottles in the rotary configuration travel through a combination of brushes and rollers while performing a pre-determined series of turns designed to expose leading and trailing label edges to the wiping medium. If necessary, these turns can be repeated for multiple label applications. The bottle is then released by the centering bells and returned to the conveyor by the discharge star.

An alternative to the rotary/pallet label transfer method is the new vacuum/pinch roller method of transferring labels on in-line machines.

Vacuum is used (instead of glue) to remove each label from the hopper. The label is then transferred mechanically, by a simple roller system, past the glue roll and directly onto the bottle. Because glue is not involved in the label pick-up process, the system economizes on glue, and operates cleanly. Plus, the sometimes inconsistent tack quality of glue is not a concern.

This style of labeler is unique, in that no label change parts are necessary. The label hopper is fully adjustable to handle labels up to 14½" wide. Various speed ranges are available, up to 250 bpm.

A new version of this machine design can also handle front and back labels, as well as single-spot, partial-wrap, and full wrap-around body labels. Since this is an in-line machine, speeds are limited, and no shoulder or neck labels can be applied. However, this machine design does offer flexibility for body labeling, with no label change parts.

Summary

In-line machines are an excellent choice for bottles that require single or front-and-back labels, and wineries with no future plans to add other set-ups that cannot be applied in a single pass and without selective bottle rotation.

The rotary system offers flexibility in handling a wide variety of bottle and label configurations, often at twice the speed of in-line units.

Such requirements, whether immediate or future, ultimately determine the final choice of equipment.

As in-line and rotary technology increases, the wine industry will discover more opportunities to improve productivity and cost-effectiveness. ■

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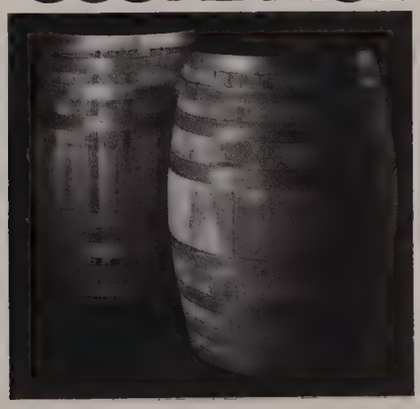

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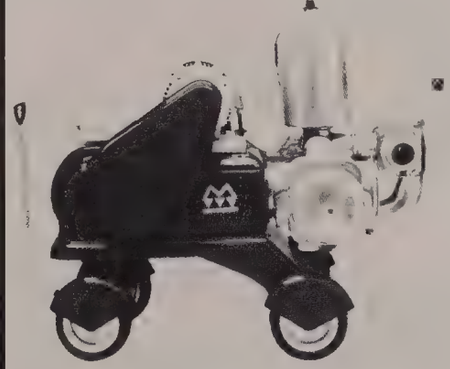

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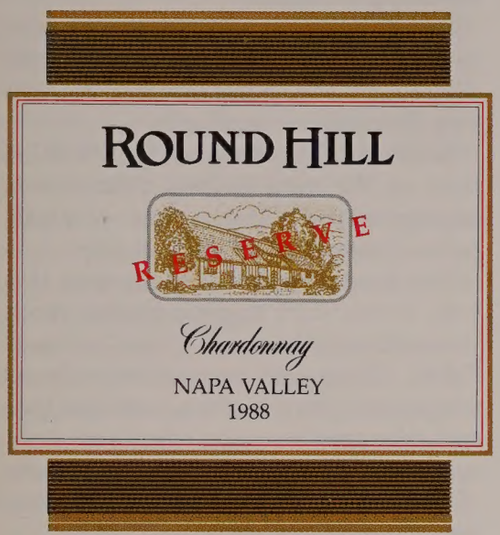


By Eleanor & Ray Heald

In the 1980s, California wines experienced phenomenal growth and critical acclaim. In fact, it's hard to find a wine consumer today who hasn't been touched in some way by California wines.

But this success has not come without its problems. With more wineries producing a greater number of varieties than ever before, the process of selecting a wine can be a real task; regardless of whether one is an amateur, or an experienced consumer. Attempts by the media to categorize wines by price category; *i.e.*, jug, fighting varietal, or super premium; or by region haven't simplified the task.

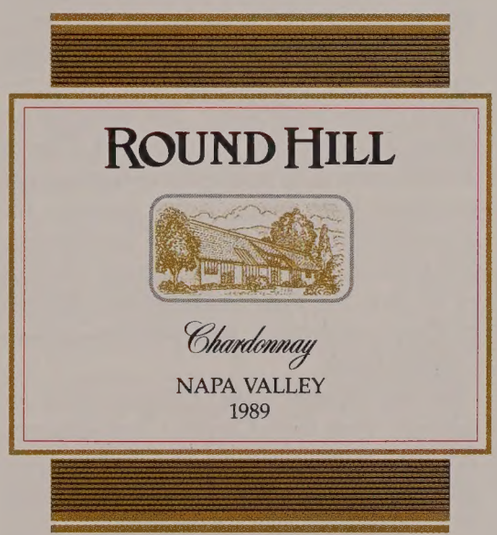
Round Hill Winery in Napa Valley is one winery which has been successful in its efforts to get its name before the consumer. We asked Jim Cahill, Marketing Director about the Round Hill approach to sales and marketing.

Round Hill markets a three-tiered product line. 'House' wines, with a blue Round Hill label, have California and American appellations: 80% to 100% Chardonnay, Fume Blanc, and Cabernet Sauvignon. White, Red, and Blush generic wines complete the 'House' category.

'Napa' Valley appellation wines include 100% Chardonnay, Gewürztraminer, Cabernet Sauvignon, and Zinfandel, under a gold Round Hill label.

'Reserves', with a Napa Valley appellation, are 100% Chardonnay, Cabernet Sauvignon, and Merlot, and have a gold Round Hill label with 'Reserve' in red ink.

The 'Rutherford Ranch' brand constitutes about 5% of total production. These wines also carry a Napa Valley appellation and may come from the same vineyards as the 'Reserves', but have intentional stylistic differences — more barrel fermentation for the Chardonnay and



longer barrel ageing for the reds. These wines are labeled with a distinctly different Rutherford Ranch label that offers no consumer identification with Round Hill Winery.

Price points and image

Round Hills's tri-tiering has been criticized by at least one influential member of the wine press, as confusing to the average consumer.

"Such criticisms indicate that one of the wine industry's biggest jobs is the continued education of wine spokespersons," contends Cahill in defense. "Since 1985, Round Hill has been changing direction. We're no longer labeling wines from multiple regions in California.

"We've tried to distinguish our wines from the 'fighting varietal' battle. One way we do this is with the labels. Napa Valley wines are labelled in gold and the popular-priced 'House' wines are labelled in blue."

"Secondly, we've priced the wines from $.50 to $1.00 higher than the key feature pricing of the major players in the fighting varietals segment of the market."

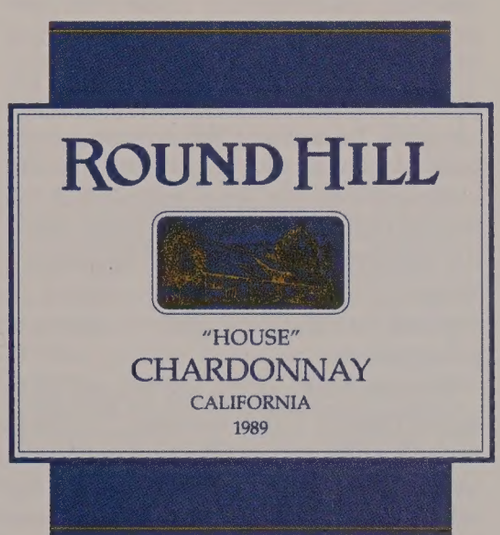
Price points for the 'House' wines are set at about $6.00 to $7.00 nationally. These wines are placed in supermarkets in many areas of the U.S.

"It's difficult to establish the quality concept in supermarkets," Cahill emphasizes, "so we are careful to remain as competitive as possible."

Round Hill's market research shows the critical retail price point remaining at $10.00. 'Napa' and 'Napa Reserve' wine pricing is predicated first on the cost of the wine, but the intention is 'Napa' wines nationally priced around $8.00, and 'Reserve' wines at about $10.00. These wines are sold principally in restaurants and fine wine shops.

"Philosophically, in each of the tiers, Round Hill wines represent two things," Cahill maintains. "The first is quality and the second is value. Grape sourcing has given us long-standing relationships in the Napa Valley and the ability to contract for quality grapes while maintaining our price points.

"This has been vital to the development of this tiered program."



Round Hill's roots

Common interests in boats, sailing, and an appreciation for fine wine brought Ernie Van Asperen and Charlie Abela together to start Round Hill Winery in the Napa Valley over a decade ago.

Van Asperen owned 84 retail wine and

spirits shops in California. Abela, a marine engineer, was an avid oenophile who made wine in his father's basement in San Francisco, CA years ago.

In 1968, Van Asperen hired Abela to help develop vineyards owned by Van Asperen in Napa Valley while Van Asperen continued to manage the retail shops. Together, the two friends made amateur wine from Napa grapes and the idea of establishing a winery kept fermenting, along with the grapes.

By the early 1970s, Van Asperen had great success selling an 'Ernies' private wine label wine both nationally and in his "Ernie's" stores. Finally, in order to expand production of the 'Round Hill' label, Van Asperen sold it to Abela in 1975, and the search began for a production facility.

The first wines from the 1976 harvest were produced in an old St. Helena warehouse. Production was 30,000 cases in 1976.

The label and package design for the new brand was created by Virginia Van Asperen, a fashion retailer and Ernie's wife, who joined the two partner/proprietors in their new venture.

In 1988, the partners built the 27,000 sq. ft., 300,000-case Round Hill Winery on the Silverado Trail in St. Helena. To facilitate the expansion, 24 limited partners were added in 1986.

Today, the three original partners hold distinct positions in directing the winery. Abela is President, Van Asperen is C.E.O., and Virginia assists Lee Hodo with public relations. Cahill was hired as National Marketing Director, Mark Swain is Winemaker, and Phil Baxter is General Manager.

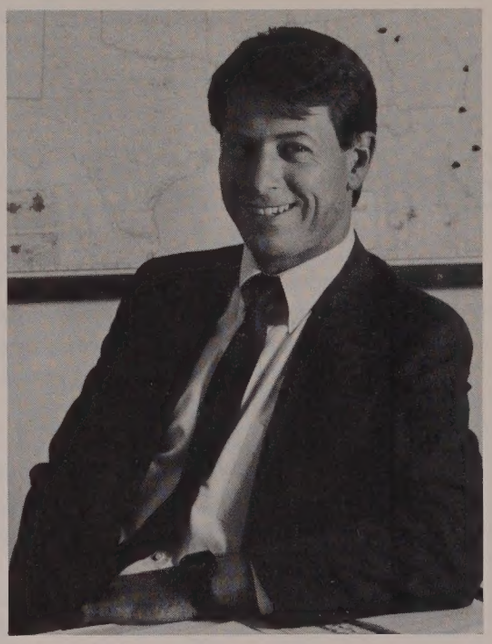
In 1981, because of the winery principals' desire to give business to small vineyard owners who supported the Round Hill enterprise in its early years, the Rutherford Ranch brand was begun. Wines in this brand are fermented in separate lots and aged under a variety of oak regimes.

"Rutherford Ranch is not Round Hill's second label," Cahill stresses. "It differs in both style and production methods. Core markets have been targeted for the sale of Rutherford Ranch. Pricing is about $12.00/bottle."

Sourcing Grapes

The Van Asperens own 24 acres of Napa Valley vineyards and stockholder properties contribute additional acres.

"We control about 80% of our production," Cahill contends, "including purchased grapes. Today, it is incredibly difficult to be both a producer and a grower, because it's capital-intensive. Only a limited number of wineries are able to make wine and farm grapes profitably. But we monitor what we buy very closely."



Jim Cahill

In the late 1970s through the mid-1980s, much of the Round Hill line was produced from bulk wine. But reliance on these sources today has changed. One of Abela's jobs is to secure long-term grape contracts with Napa Valley growers for approximately 700 tons of Chardonnay, 300 tons of Cabernet Sauvignon, 60 tons of Merlot, 100 tons of Zinfandel, 30 tons of Gewürztraminer, and 140 tons of Sauvignon blanc.

For the 'House' label, 170 tons of Chardonnay come from Central Coast growers. About 25,000 gallons of Chardonnay juice is custom-crushed at Wente Brothers in Livermore. Custom-crushing of Chardonnay from the foothills of the Central Valley is done at Franzia Winery in Lodi. Additionally, 50,000 gallons of custom-crushed Chardonnay comes from Sonoma Valley, and 60,000 gallons from Washington state.

"We have the greatest production control on the 'Napa Valley' wines and consistently purchase 75% of the grapes from the same sources. This is the reason we've been able to produce a consistent style with each varietal in each tier.

"Even the 'conglomerate' wineries, so to speak, must annually source grapes outside what they own to produce a consistent product within their marketing niche. That's the nature of this industry."

Cahill points to the sales side of the business. He notes that there are wineries that expect to be a 120,000-case winery, only to find that their market niche is actually 50,000 cases. Then they have grapes to sell and a new grape source is available.

"We've been a player in the Napa Valley for more than 10 years and if you add in Abela's and Van Asperen's vineyard experience, it's a lot more than that," says Cahill. "Staying power is significant to growers. It is our philosophy that Napa Valley wineries should produce Napa Valley wines."

Marketing Strategies

Round Hill's national marketing is done in-house. Cahill is the one man responsible for pricing, programming, and setting distribution standards.

Cahill spends approximately 50% of his time on the road visiting distributors, sales personnel within a given wholesale house, restaurateurs, and retailers.

"You must spend 50% of the time this way, if you want to get a feeling about your wines in the marketplace," stresses Cahill. "I can work more effectively, by telephone from the office, with the general sales manager of a wholesale firm, once I've visited and received feedback. "It's the only way to effectively use your programming dollars."

Cahill breaks down marketing strategies into two opportunities. If he perceives that one of the tiers is price-sensitive within a given market, he allocates programming dollars to reduce the cost of the product via frequent post-offs.

On the other hand, if the need is improved distribution, he allocates incentive dollars on a cooperative basis with the local wholesaler to institute a sales drive. "I'm insistent on this cooperative allocation of monies," Cahill advises. "This way, I'm sure that the wholesaler also has a vested interest in the brand."

Private Labeling

A successful private label operation of approximately 60,000 cases/year draws from all Round Hill tiers except the Rutherford Ranch brand. These wines are vintage or non-vintage dated.

From the beginning, Van Asperen had strong ties to the restaurant business and when restaurants looked for other than generic wines to complement various cuisines, Van Asperen presented the "Ernie's" Round Hill wines.

In the early 1970s, this was an upscale image for many restaurants. Simultaneously, as the Round Hill brand caught on nationally, premium wine purchases in restaurants escalated.

Restaurant accounts were interested in

the quality wine produced by Round Hill, but wanted to build their own names and reputations. Private wine labelling was, and still is, viewed by many establishments as a commitment to quality on the part of the restaurateur.

"We took this interest and developed labels for the participating accounts," Cahill explains. "They've been extremely successful. It's just an extension of an initial program for the Round Hill brand."

Accounts sample the wines and make decisions about which ones they want privately labeled. The winery can aid in label design. "The restaurant has quality control over both the wine and the label," remarks Cahill. "As a result, accounts feel that it's done professionally. It's not a commodity goods item.

"We're not competing just on price points within the market; we're above that. In large measure, it has given success to the private label program."

One person is employed full-time to oversee private label design and BATF approvals for each account (principally, restaurants and country clubs).

Cahill outlined the advantages of private labeling with the account's name and label. There's no price set in the market and the account establishes the price. The consumer cannot make identification with the price because it's a wine that's not in regular distribution. The client makes a quality identification based on the merit of the other services provided by the establishment.

"The account can make more money with a privately labeled bottle than with a nationally distributed brand commanding brand recognition," contends Cahill. "But there is the upfront investment of label design and production to be considered. We also require a 500-case minimum annual purchase."

Good relations with the local distributor are essential because the private-label wine must be inventoried, and in most situations stored, since the account does not have on-premise storage for a large quantity of wine.

"We also ask that our private label customers pour Round Hill wines," Cahill stresses. "We like them to feature two of our wines. Additionally, we do require that the private label state 'produced and bottled by Round Hill Winery, Napa Valley'."

Analyzing today's consumer

During the 1980s, several industry visionaries believed that varietally-labelled Chardonnay and Cabernet Sauvignon could be marketed profitably at prices signficantly less than the defined plateau of the time. They tapped into affordability with classic varietals and established a new market position for California wines.

These entrepreneurs carved out a significant consumer interest in California wines. "There are people who purchase California wine now, who previously did not," maintains Cahill. "They were programmed to buy a $3.99 bottle of imported wine, because a California product of equivalent quality and price was not available.

"Sutter Home with white Zinfandel and the Benzigers with their varietally-labeled Glen Ellen wines have lent credibility to affordable pricing of quality varietals from California."

Cahill claims that part of this market niche will be lost if significant fluctuations of foreign currencies occur. Sales could also be lost to the wines from Chile and Argentina that are currently attractively-priced. On the other hand, he sees California as an increasingly strong entity, especially on the East Coast and in the Midwest.

As a result, Cahill suggests, a signficant number of consumers are willing to pay $6.00 for a California wine that used to cost $5.00.

"It took the California wine industry a long time to learn how to approach the home market," Cahill contends. "It must continue to capitalize on this.

"People are going to make a choice whether they want to buy a Macon wine for $7.00 or an equivalently-priced California Chardonnay. That choice is based on style preference — a choice unavailable to the American consumer 10 years ago.

"Where the problem occurs is that this industry has created an increasing number of price-point shoppers. That's destructive to our business. The industry is getting into a mass-marketing concept, and wine sales have become a commodity goods program. When prices increase due to rising production costs, the quality issue is lost.

"Many retailers believe that it's the price-point, not the quality, that's important to the consumer. Retailers do themselves an injustice with this attitude, and their customers are ill-served.

"If these attitudes persist, it will open the doors for French producers of fighting varietal wines. There's little brand loyalty; nobody seems to have a handle on how to generate it, and that impacts this entire business," concludes Cahill. ■

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April 10-11, Wednesday-Thursday
New York Wine Industry Workshop — will present some of the advances in enology and viticulture research at Cornell University and practical discussions on winemaking and grapegrowing. Winemaking presentations will contain: Check list for wine quality assurance including use of standard juice and wine analyses, pH and acid control, adequate SO_2 and sorbate additions, and fining options for correction of defects and for refining wine quality. There will be wine tastings of Pinot Noir and Gewürztraminer and a Grand Tasting of regional wines before the symposium banquet. Grapegrowing presentations will include: "Production of crown gall-free grapevines", Dr. Thomas J. Burr; "How grapevines survive winter", Dr. Robert M. Pool; "Rootstock for vinifera", Gary Howard; "Health risk assessment versus risk perception", Dr. Gilbert Stoewsand; "Alternatives to conventional methods of managing grape pests", Dr. Timothy Denehy; "Nitrogen deficiencies in New York juices and stuck fermentation", Dr. Thomas Henick-Kling; "Fruit maturity — flavor, disease status, pH, TA", Dr. David Peterson; "Grape viruses", Dr. Dennis Gonsalves; "Production of Pinot noir", Ann Raffetto; "Production of Gewürztraminer", James Zimar; "Juice and wine fining", John Herbert, Robert Distler, James Gifford. **Location:** New York State Agricultural Experiment Station, Geneva, NY. **Contact:** Thomas Henick-Kling, Dept. of Food Science & Technology, Geneva, NY 14456-0462; tel: 315/787-2277.

April 12-13, Friday-Saturday
Sixth Annual Brewers & Vintners Technical Seminar — Golf on Friday followed by Saturday's topics and speakers: Filtration with diatomaceous earth, Manville and Celite Corp.; Current ethyl carbamate regulations and status, Art Caputi; Regulatory issues for 1991, Richard Gahagan, BATF; Awareness and education vs. regulation and legislation, Stephen Burrows, Anheuser Busch; Water filtration and quality, Hank Kaufmann, Calgon Corp.; Rapid detection techniques for micro-organisms, Mike Barney, Miller Brewing; Interactions between *saccharomyces* and non-*saccharomyces* yeast during fermentation, Michelle Osborne, Fresno State; Alpha and Beta Analyze in malt and the brewing process, Marjory Snyder, UC Davis. **Location:** The Cliffs at Shell Beach Hotel, Shell Beach, CA. **Contact:** Larry Galberd, 3428 Melvin Ct., Newbury Park, CA 91320.

June 18-19, Tuesday-Wednesday
International Symposium on Nitrogen in Grapes and Wine; **Location:** Seattle Convention Center, Seattle, WA. **For more information, call:** ASEV, 916/753-3142.

June 20-22, Thursday-Saturday
1991 Annual Meeting of American Society for Enology & Vitculture; **Location:** Seattle Convention Center, Seattle, WA. **For more information, call:** ASEV, 916/ 753-3142.

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